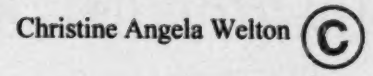
Running head: SELF-HANDICAPPING, GOALS AND STUDY STRATEGIES

University of Alberta

Self-Handicapping: Effects on students' goal orientations and use of study strategies

by

Christine Angela Welton 

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Abstract

Students who deliberately sabotage themselves academically to protect their self-worth often employ self-handicapping strategies (Midgley & Urdan, 2001). Students with self-handicapping tendencies tend to focus on academic performance more than learning (Pintrich, 2000). This study examined the relationship between students' use of self-handicapping strategies and their goal orientations. An intervention component of learning and study seminars was implemented to determine if the intervention altered students' use of self-handicapping strategies and goal orientations. Surveys (PALS and LASSI-HS) were administered to 137 grade 11 and 12 students from three high schools in Alberta over two different time periods. Between the two testing periods students were taught how to monitor and use study strategies. Results suggested that there were significant relationships between self-handicapping strategies, goal orientations, and use of ineffective study strategies. According to posttest results, students reported the use more effective study strategies after the intervention.

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CHAPTER 1

Introduction

Overview of the Issue

Researchers have found that the majority of high school students use various types of study strategies (Woolfolk, 2001; Zimmerman & Schunk, 2001). Although many students may go through school and achieve reasonable grades, they may never acquire knowledge on how to use effective study strategies (Zimmerman & Schunk, 2001). In addition, many students who use ineffective study strategies may not be illustrating their actual academic potential. A unique group of students who have been identified as using ineffective study strategies are students with self-handicapping tendencies (Hirt, McCrea & Boris, 2003; Midgley & Urdan, 2001). Self-handicapping is a term used to describe students who deliberately sabotage themselves academically even though they are often capable of academic success. As students become more entwined in the use of self-handicapping strategies (stronger self-handicapping tendencies including perceptions, beliefs, and strategies) their risk for developing (a) poorer adjustment to adversity over time, (b) poorer study strategies, and (c) feelings of depression, anxiety, and helplessness greatly increases. In addition, students who use self-handicapping strategies are thought to have a strong performance goal orientation suggesting they may be more concerned with performance than with learning the material (Pintrich, 2000; Urdan, 2004). Hirt and colleagues (2003) suggest that not only may students with self-handicapping tendencies endorse performance goals, but they may use ineffective study strategies. Therefore, if students are taught the effective use of study strategies to help them learn the material, they should reduce their focus on

performance and their use of self-handicapping strategies.

The majority of research on the use of self-handicapping strategies has focused on identifying predictors (perceptions, beliefs, and strategies) of self-handicapping tendencies (academic efficacy, use of self-handicapping strategies, avoiding novelty, self-presentation of low achievement, and relevance of school for future success), and students' use of ineffective strategies with minimal focus on intervention (Eppler, Carsen-Plentl & Harju, 2000; Hirt et al., 2003; Midgley, Arunkumar & Urdan, 1996; Midgley & Urdan, 2001). In addition, most of the research has focused on college, university, or middle school students' use of self-handicapping strategies (Midgley & Urdan, 2001). To address the void in the literature, the current study will compare differences between high school students with and without self-handicapping tendencies before and after participating in a study strategies program. Also, students will be provided with a personal learning profile that identifies their strengths (effective study strategies, and goal orientations), and weaknesses (self-handicapping tendencies, goal orientations, and use of study strategies) so they know which strategies require attention.

When discussing students who self-handicap, researchers have suggested that the achievement goal orientation (mastery, performance-approach, performance-avoid or combination) students endorse relates to their use of self-handicapping strategies (Hirt et al., 2003; Midgley, Kaplan & Middleton, 2001; Midgley & Urdan, 2001; Woolfolk, 2001). As students who use self-handicapping strategies are focused on ability attributions, goal theory suggests that they would endorse more performance goals (Midgley & Urdan, 2001). Given this, there may be different relations with goal

orientations employed between students with and without self-handicapping tendencies in their perceptions, beliefs, and strategies employed. In addition, Midgley and colleagues propose that there may also be different relations between predictors of self-handicapping and use of study strategies (Midgley et al., 2001; Midgley & Urdan, 2001). Therefore, this study will examine the relations between goal orientations, predictors of self-handicapping tendencies (perceptions, beliefs, and strategies related to self-handicapping), and study strategies for students with or without self-handicapping tendencies separately.

Midgley and Urdan (2001) propose that students who use self-handicapping strategies may do so because their motivation to achieve is focused heavily on performance and looking smart thus, inhibiting them from attaining their academic potential. Students who tend to endorse performance-goal orientations are more concerned about personal performance, doing better than others, and demonstrating ability rather than learning the material (mastery goal oriented) (Midgley & Urdan, 2001; Pintrich, 2000; Wolters, 2004; Wolters & Yu, 1996). There are two ability or performance orientations: (a) performance-approach (orientation towards demonstrating ability, and outperforming others), and (b) performance-avoid (orientation towards hiding the demonstration of lack of ability, looking stupid, or incompetent) (Midgley & Urdan, 2001; Pintrich, 2000; Wolters, 2004).

Numerous researchers propose that students with self-handicapping tendencies are more performance-avoid goal oriented and less mastery goal oriented as they are concerned with hiding their lack of ability, and protecting their self-worth (Midgley & Urdan 2001; Pintrich, 2000; Urdan, 2004). However, this may vary as students rarely

possess just one type of achievement goal orientation (Eppler et al., 2000; Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pintrich, 2000). Pintrich suggests that students who have combination achievement goal orientations such as high mastery/high performance or low mastery/high performance are most likely to use self-handicapping strategies as they are more focused on social comparisons than mastering concepts. Although much of the literature discusses performance-avoid orientation there is just as much research that cannot find any significant differences in the goal orientations used by students with self-handicapping tendencies (Eppler et al., 2000; Midgley & Urdan, 2001; Pintrich, 2000). Therefore, this study will aim to determine if students with self-handicapping tendencies primarily use performance goal orientations and less mastery goal orientations.

In the current study, two groups of students are distinguished: those with and without self-handicapping tendencies by their behaviors, beliefs, and perceptions. The purpose of the study is to (a) examine the relations between predictors of self-handicapping tendencies (academic efficacy, academic self-handicapping strategies, avoiding novelty, skepticism about the relevance of school, and self-presentation of low achievement), goal orientations, and study strategies used by the two groups on pretest scores, and (b) compare the scores between and within the two groups (with and without self-handicapping tendencies) before and after the study strategies seminars (intervention). The information gleaned from this research has practical implications for developing students' personal learning profiles and results will be discussed following self-handicapping, goal orientation, and study strategy theories.

CHAPTER 2

Literature Review

For decades, researchers have studied what motivates students of differing ages to learn, the reasons why they want to achieve, the goals they use to achieve, and the study strategies that they use to learn (Dweck, 1986; Eppler et al., 2000). This area of research is especially useful for educators given that there are many students who are academically capable, but are defeated about learning. Reasons for academic demoralization are often related to motivation, study strategies, and self-regulation (Schunk, 1996; Woolfolk, 2001; Zimmerman & Schunk, 2001). Motivation is related to students' individual goals, how they go about achieving their goals, and the reasons they use different types of strategies to achieve their goals. Motivation is often defined as "an internal state that arouses, directs, and maintains behavior" (p. 366, Woolfolk, 2001). When working with students on motivation, educational and school psychologists have five questions that they typically focus on: (a) what choices do people make about their behavior? (b) How long does it take to get started? (c)What is the intensity or level of involvement? (d) What causes the person to persist or to give up? And (e) what is the individual thinking and feeling while performing this activity (Woolfolk, 2001)? Answers to these questions may help teachers motivate students to achieve their potential, and use more effective and adaptive academic strategies.

Motivational Theory

Intrinsic and extrinsic motivation. Initially, motivation research focused on what drives and directs students' behaviors. One such theory is that motivation relies heavily on students' internal factors of personal needs, interests, curiosity, and enjoyment (Deci

& Ryan, 1985; Deci, Koestner & Ryan, 2001; Woolfolk, 2001). An alternate explanation is that motivation is driven by external factors such as environmental factors of rewards, social pressure, and punishment. Therefore, students who are intrinsically motivated (by internal factors) tend to seek out challenges and do so based on their curiosity or interest in doing the activity (mastery oriented) (Deci, Koestner & Ryan, 2001; Woolfolk, 2001). On the other hand, extrinsic motivation (by external factors) may occur when students do a task for the grade or reward, but are not necessarily interested in learning about the task (performance oriented) (Deci & Ryan, 1985; Woolfolk, 2001). According to Deci and Ryan, students' motivation is due to locus of control, students' choice of activity, and students' generalized belief as to what extent their behavior influences outcomes, such as successes or failures.

Goal theory. Rotter, a prominent social theorist, introduced locus of control as a dimension of personality that describes the expectancy of degree to which individuals believe they have control over their outcomes (Wieten, 1992). Thus, students who espouse intrinsic motivation and internal locus of control are self-determined or have a personal interest in performing the task (Deci & Ryan, 1985; Wieten, 1992; Woolfolk, 2001). In addition, students with an internal locus of control believe that the outcomes on the tasks (e.g. grades, rewards) are due to the effort and work they put forth, and that they have control over it (Deci & Ryan, 1985; Pintrich & Schunk, 1996). Internal locus of control and intrinsic motivation are believed to have strong positive influences on students' wellbeing (Deci & Flaste, 1995; Pintrich & Schunk, 1996). In contrast, students with an external locus of control believe that their behaviors and actions have little effect on the outcome or their grades, and that there is very little they can do to

control or change this (Deci & Flaste, 1995; Pintrich & Schunk, 1996). The two loci of control have an influence over the types of goals students use in completing tasks. As such, it can be expected that students with an internal locus of control would: (a) exhibit higher levels of self-esteem, (b) be more adaptive in stressful situations and (c) perform a task for the personal rewards they gain from accomplishing the task (Deci & Flaste, 1995; Deci & Ryan, 1985; Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004). In contrast, students who focus heavily on extrinsic rewards and have an external locus of control tend to experience lower levels of self-esteem, poorer psychological well-being, and focus on excessive social comparisons (Deci & Flaste, 1995; Vansteenkiste et al., 2004). These experiences are similar to students who have self-handicapping tendencies.

According to goal theory, students who express an external locus of control are more performance-goal oriented and are at risk for using self-handicapping strategies (Pintrich, 2000; Urdan, 2004). It is argued that the type of locus of control influences the student's ability to learn, their motivation, and behavior based on the setting, and the task being performed (Pintrich & Schunk, 1996). Locus of control is used as a basis in discussing each of the approaches to motivation in present day research, as is reviewed below.

Cognitive theory. The cognitive perspective to motivation deals with students' self-concept (belief about who they are which requires thinking and personal reflection). Behavior is defined by an individual's past; it is initiated and regulated by one's goals, aspiration, schema, expectations, and attributions (Schunk, 1996; Woolfolk, 2001; Zimmerman & Schunk, 2001). Cognitive theory emphasizes intrinsic motivation. A

cognitive perspective sees people as active participants who are curious and who want to solve their personal problems (Wieten, 1980, Woolfolk; Zimmerman & Schunk, 2001). Weiner's (1980) attribution theory is an example of a cognitive theory of motivation.

Weiner emphasizes that most of us ask "why" and try to understand our successes and failures. According to Weiner (1980) most of the causes of success and failure can be attributed to three different dimensions: (a) locus (location of the cause that may be external or internal to the person), (b) stability (does the cause stay the same, or does it vary, or change?), and (c) responsibility (can the person control the cause?).

An example of Weiner's (1980) first dimension, locus, would be if a student did not study purposely for a test; the locus would be internal, the cause would be unstable as the individual could change the decision not to study, the responsibility is controllable as the person had the choice, and the individual could have studied for the test. Weiner believes that the internal and external loci of control are closely related to self-esteem (evaluation of who the individual is). In an applied sense, if students attribute success or failure to something internal to the person then success would lead to pride thus, increase motivation and self-esteem. Conversely, failure would decrease their self-esteem.

For his second dimension, stability, Weiner (1980) believes that stability is strongly related to future expectations for students. Therefore, if students attribute failure in mathematics as being relatively stable as the material was difficult then they would expect to have difficulties or failures on future mathematics tests. However, if

the attribution of their failure was because they were in a bad mood or had bad luck that day then there would be hope that they may pass the next mathematics test.

The third dimension, responsibility, is related to emotions such as anger, shame, pity, or gratitude. It is argued, that if students feel responsible for their failure then they would feel shame or guilt towards authoritarian figures. However, if those same students feel responsible for their successes then they will feel proud and would attribute their success as being lucky as it was out of their control (performance oriented). The control factor is also related to what task students choose to complete. That is, the level of difficulty of their selected tasks determines whether they put in more effort, and if they persist in school (Schunk, 1996; Weiner, 1994). Weiner's theory is used to understand achievement goal theory including the differences between mastery-goal (high persistence, effort, and prefer challenges) and performance-goal (prefers material that they are familiar with and can do well on) oriented learners. In addition, Weiner's theory may help researchers and practitioners understand how students' rationalize their performance such that teachers can help restructure students' maladaptive goal orientations (e.g. through the use of cognitive behavioral therapy).

Social-cognitive theory. The final approach to be reviewed is social-cognitive theory. Social-cognitive theorists define motivation as the product of individual expectations for reaching goals and the value of what the goals mean to the individual (Bandura, 1997; Pintrich & Schunk, 1996). Therefore, students' expectations and the values of what the goals mean to them are comparable to locus of control. If either factor (students' expectations or value of what their goals means) is zero, students will not be motivated. For example, if students did not expect to reach their goals, then they

will not be motivated by the value associated with reaching the goals. On the other hand, if students have a high expectation of reaching the goal, but do not value what the goal means when it is reached, then why will they be motivated to achieve that goal?

Bandura's social learning theory and self-efficacy is a good example of the expectancy value approach to motivation. Bandura developed the social-cognitive model of behavior which focuses heavily on self-efficacy (Bandura, 1997; Pintrich & Schunk, 1996; Woolfolk, 2001). Self-efficacy is students' judgments of their competency and capability to execute the course of action that is required for them to attain the type of performance that they intend to achieve (Pintrich & Schunk, 1996). Students have efficacy judgments about their capabilities, skills, knowledge to master the task being attempted, and have outcome expectations about grades they expect to receive (Pajares & Graham, 1999; Pintrich & Schunk, 1996; Woolfolk). For example, a student might have high self-efficacy about their competency and belief in studying for a science diploma exam. However, if the student believed that the exam would be extraordinarily difficult he/she may have a low self-efficacy for the grade he/she was capable of attaining. Therefore, students may have a combination of high and low self-efficacy based on competency and expectation that determines the behavior and outcome for performing the task (Pajares & Graham, 1999; Pintrich & Schunk, 1996). Bandura suggests that the greater the self-efficacy, the greater the effort and persistence to perform the task when faced with setbacks (Bandura, 1997; Pintrich & Schunk, 1996; Woolfolk, 2001). Therefore, high self-efficacy to attain competency on a task would be comparable to a mastery goal orientation in achievement goal theory.

Achievement goal theory. The previous review is the basis for achievement goal theory. Achievement goal theory brings together the relationships between goals, attributions, beliefs in one's ability, motivational orientations, achievement orientations, expectations, task value, self-efficacy, test anxiety, as well as social and self-comparisons (Ames, 1992; Pintrich, 2000; Schunk, 2000). In the past 15 to 20 years, goal theory research has focused on how different goals elicit very different motivational patterns, and how different motivational patterns affect goal achievement in students. Achievement goal theory also takes into account students learning and performance on academic tasks (Pintrich & Schunk, 1996; Woolfolk, 2001). In addition, achievement goal theory illustrates that motivational effects have emotional, cognitive, achievement, and social repercussions (Ames, 1992; Pintrich & Schunk, 1996; Woolfolk). The majority of research involving achievement goal orientations encompasses cognitive behaviors which have cognitive, affective, and behavioral consequences (Ames, 1992; Dweck & Leggett, 1988). Goal theory research also focuses on a social-cognitive framework on how students think about themselves, the tasks they are required to perform, and their performance (Urdan, Midgley & Anderman, 1998). Therefore, achievement goal theory takes into account locus of control and outcome expectations being integral determinants of achievement behaviors and self-efficacy (Schunk, 2000). For example according to Schunk (2000), positive outcome expectations do not ensure that a student will be highly motivated. Students may believe that effort will produce good grades, but if they do not believe that they have the ability to put in that effort (low self-efficacy) they will not be highly motivated to perform the task (Bandura, 1997; Schunk, 2000). Therefore, when students purposely do not try new

tasks, have low self-efficacy, and attribute failure to being out of their control, they would be referred to as having a performance-goal orientation (Urdan & Midgley, 2001). Additional characteristics of a performance-goal oriented student include: (a) believing that they lack ability, (b) worrying how they compare with other students in the classroom as they do not want to be labeled "dumb" or "stupid", (c) being more concerned about grades than learning, and (d) finding no relevance in school for their future successes (Urdan & Midgley, 2001; Pintrich, 2000; Urdan, 2004).

Achievement goal orientation theory as presented by Pintrich (2000) can be divided into two main categories or types of orientations: (a) mastery - where the student is persistent, puts in effort, has high self-efficacy, uses adaptive strategies, has high intrinsic motivation, has the goal of learning from doing the task, and understands that success comes from the effort put forth, and (b) performance - where the student focuses on social comparisons with others, has lower self-efficacy, focuses on the outcome, tends to use less adaptive strategies, avoids seeking help from others, and uses extrinsic motivators (Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pintrich, 2000). While the majority of the literature focuses on each student having just one type of goal orientation, Pintrich considers combinations of achievement goals that students use. Pintrich observed that there were very few situations where students use only one type of goal. He suggests that the most adaptive students tend to use a high mastery/low performance goal orientation. In contrast, students who are high mastery/high performance or low mastery/high performance would use more maladaptive study strategies to meet goals and to protect their self-worth (Pintrich, 2000). In fact, students who typically use self-handicapping strategies use similar strategies to students with

high performance goal orientations (Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pintrich, 2000). Both groups of students focus their attention on comparisons with others or negative judgments regarding themselves (Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pintrich, 2000). It is anticipated that self-handicapping strategies are used as students become less involved in learning, and more involved with social comparisons (Midgley & Urdan, 2001; Pintrich, 2000). However, the research has not been able to illustrate definitively that students with self-handicapping tendencies endorse performance-goal orientations (Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pintrich, 2000).

Self-Handicapping Strategies

Background and definition of self-handicapping. Numerous researchers have studied various self-defeating behaviors, more specifically self-handicapping behaviors (Baumeister & Scher, 1988; Urdan & Midgley, 2001). Baumeister and Scher in their 1988 study defined self-defeating behavior as any deliberate or intentional behavior that tends to have very clear, probable or negative effects on the individual or on the task the individual is working on. Therefore, the behavior is intentional; however, the harm to oneself does not have to be the primary goal (Baumeister & Scher, 1988). Baumeister and Scher (1988) classify self-handicapping as a model of self-defeating behavior referred to as a self-defeating tradeoff, whereby the individual has various goals, and desires different outcomes. However, the situation or task puts their goals and desires into opposition. Generally, individuals who self-handicap do so because they disproportionately weigh their short-term desires versus their long-term goals (Baumeister & Scher, 1988). Therefore, the decision on what goal to select is often

made by focusing on which goal gives the most immediate, beneficial, and short-term consequences. By doing so, the individual tends to underestimate the long-term negative consequences of their goal choice that often increases the likelihood of failure (Urdan & Midgley, 2001). In such cases, the individual tends to choose a goal response that has particular benefits, but also has some harmful outcomes that often undermines the success for one of their many goal choices (Baumeister & Scher, 1988).

Self-handicapping was originally defined by Berglas and Jones in 1978 as "any action or choice of performance setting that enhances the opportunity to externalize (or excuse) failure and to internalize (reasonably accept credit for) success" (as cited in Baumeister & Scher, 1988 p. 10). In the original research, self-handicapping behavior was composed of two parts (Baumeister & Scher, 1988). Part one consisted of self-defeating behavior where students manufactured obstacles to their success that could be construed as the blame for any future failures (Baumeister & Scher, 1988). Part two, reviewed the actual citing of the excuses as to what may have interfered with students' performance (Baumeister & Scher, 1988). Therefore, should students fail under these extenuating circumstances and manufactured obstacles then it could not be because of incompetence. Also, when students succeed, the manufactured obstacles augment the fact that they could be successful even under such circumstances, and in turn attribute their successes to high ability (Baumeister & Scher, 1988). Therefore, there are attributional benefits for students, regardless of whether they fail or succeed (Baumeister & Scher, 1988).

Academic self-handicapping. According to Midgley and colleagues (1996) self-handicapping strategies are used in academic situations when students deliberately and

consciously disengage from school. Various studies have illustrated that students use a number of different types of disengagement from school, particularly self-handicapping strategies that involve withdrawal of effort (Hirt et al., 2003; Midgley et al., 1996). Students who use self-handicapping strategies most often use avoidance behaviors prior to or during an exam or an assignment. By doing so, students can use self-handicapping strategies as rationale for poor performances, and need not blame lack of ability (Eppler et al., 2000; Woolfolk, 2001). However, if students perform well on exams, students with self-handicapping tendencies may conclude they are exceptionally intelligent because they did well with minimal studying (Hirt et al., 2003).

This literature bares resemblance to work made famous by Smith and Teevan (1971) on fear of failure. Fear of failure is the fear of making mistakes and losing approval. It is not being able to perform as we would want based on our own internalized goals and standards (Smith & Teevan, 1971). Students who espouse a fear of failure way of thinking believe that striving does not always result in success, and that failing will lead to loss of self-esteem and loss of personal value in the eyes of their family, peers, teachers, and friends (Smith & Teevan, 1971).

One of the most common defensive behaviors for students who fear failure is failure-avoidant behavior, whereby students try to reduce prior engagement in achievement behaviors. One such reduction would be lack of preparation for exams, procrastination, and setting unrealistically high or low goals for success depending on the situation to attribute failure to these extreme circumstances (Fried-Buchalter, 1992; Smith & Teevan, 1971).

Although, fear of failure sounds very much like the strategies employed by students who self-handicap, students with self-handicapping tendencies are not primarily concerned with avoiding failure. Students with self-handicapping tendencies are more concerned with how they appear to others should they perform "poorly", and are concerned with the differentiation of ability and effort (Covington, 1992; Midgley & Urdan, 2001). The self-handicapping behavior is aimed at avoiding to be viewed as incompetent, and often precedes and undermines students' performances (Urdan & Midgley, 2001). Therefore, students who espouse fear of failure are motivated to avoid failure while the motivation for students with self-handicapping tendencies involves both a poor performance outcome expectation and a strong desire to protect their self-esteem or self-worth (Hirt et al., 2003; Midgley et al., 1996; Midgley & Urdan, 2001).

In addition, just as performance-orientations are thought to be related to the use of self-handicapping strategies, so are academic-related perceptions, beliefs, and strategies. There are five academic-related perceptions, beliefs, and strategies that are thought to be related and may be predictors of self-handicapping tendencies (e.g., Midgley & Urdan, 2001). The five predictors of students' use of self-handicapping tendencies include: (a) lower academic efficacy, (b) self-handicapping strategies, (c) avoiding new and novel situations, (d) skepticism about how they should personally present their low achievement while protecting their self-worth, and (e) relevance of school to their future success (Midgley & Urdan, 2001; Urdan & Midgley, 2001). The predictors of self-handicapping tendencies are perceptions, beliefs, and strategies that students engage in and use to protect their (a) self-worth, (b) global self-esteem, and (c) ability attributions (Hirt et al., 2003). For example, many students who have lower self-

efficacy also avoid new and novel situations, subjects, or topics that may challenge their abilities. These students want to engage in tasks that they know they perform well in as they do not want their ability attributions challenged or altered.

The use of self-handicapping strategies is used as the strongest measure of students with self-handicapping tendencies. As a result, the majority of the literature has exclusively focused on identifying students who use self-handicapping strategies not students with self-handicapping tendencies (who display lower academic self efficacy, avoid new and novel situations, worry about their self-presentation of low achievement in social situations, are often skeptical about the relevance of school to their future success, and may engage in self-handicapping behaviors) (Hirt et al., 2003; Middleton, Midgley, 1996; Midgley et al., 1996; Midgley & Urdan, 2001). Therefore, this study is unique in that it will use a combination of the five predictors (academic efficacy, use of self-handicapping strategies, avoiding novelty, skepticism about school for future success, and worry about self-presentation of low achievement) to identify students who have self-handicapping tendencies, therefore, who endorse these perceptions, beliefs, and strategies.

Another void in the self-handicapping literature is its focus on middle school and college students in the United States with little information on high school students (Hirt et al., 2003; Midgley & Urdan, 2001; Smith, Sinclair & Chapman, 2002; Urdan, 2004; Urdan, Midgley & Anderman, 1998). Therefore, additional research is required on students who are at risk (who endorse some of the perceptions, beliefs, and strategies) and who use self-handicapping strategies in high schools. The inclusion of high school and sampling Canadian students adds to the literature.

In addition, a variety of students employ self-handicapping strategies. It is often difficult for educators to predict who may be self-handicapping, and as a result may not realize that successful students may have maladaptive goal orientations. The same argument would apply for students who do not put in an effort. Educators may attribute students' lack of success to being lazy when in fact they may have concentration problems, motivational and goal-orientation issues, or may suffer from anxiety because they self-handicap.

In summary, the literature has exclusively involved students who use only self-handicapping strategies, not the other four predictor (perceptions, beliefs, and strategies) used by students with self-handicapping tendencies (Hirt et al., 2003; Middleton & Midgley, 1996; Midgley & Urdan, 2001). Therefore, high school students who may have self-handicapping tendencies, as indicated by the five predictors (low efficacy, high use of self-handicapping, high avoidance of new and novel situations, high skepticism about the relevance of school, and how students presentation of low achievement) will be identified and evaluated in this study (Hirt et al., 2003; Middleton & Midgley, 1996; Midgley & Urdan, 2001). Helping students identify (a) self-handicapping tendencies (perceptions, beliefs, and strategies), (b) goal orientations, and (c) study strategies they endorse may allow them to be more adaptive across educational settings. It may also reduce their overall use of self-handicapping tendencies by involving them in the learning process.

Achievement goal orientations and self-handicapping. In traditional classrooms where teachers tend to compare students' abilities and performance such that the academic performance of students are discussed openly, fosters a classroom atmosphere

that focuses on performance goals and rarely takes into account the effort put forth by students (Midgley & Urdan, 2001; Woolfolk, 2001). Traditional classroom structure makes students openly aware of each other's abilities and makes performance the central concern, suggesting that the goals of learning environments are based on ability and competition among the students (Midgley & Urdan, 2001; Woolfolk, 2001). Dweck and other researchers have found that how students view ability and their performance goals affect how they perform academically (Dweck, 2000; Eppler et al., 2000; Kern, Fagley & Miller, 1998; Woolfolk, 2001). In addition, when teachers impose this type of competition, they are fostering students to have performance-goal orientations (Dweck, 2000; Eppler et al., 2000; Kern et al., 1998; Woolfolk, 2001). By working with students, making them aware of their strengths and weaknesses by reviewing their learning profiles with them individually, and teaching them how to use effective study strategies (intervention) they should realize that they have control over their grades, learning, and their ability to change. By teaching students how to use and apply the intervention of study strategies, students should reduce their use of self-handicapping strategies and feel they have more choices academically.

Study Strategies, Goal Orientations, and Self-Handicapping

Students who are capable and put forth effort may experience some performance difficulty at some time during their educational career. This may not be due to lack of ability or effort, but due to lack of effective study strategies (Gettinger & Seibert, 2002; Warner, 2000). Students may go through the educational system, achieve reasonable grades yet never acquire proper organizational and study skills (Gettinger & Seibert, 2002; Hong & O'Neill Jr., 2001; Kitsantas, 2002; Schunk, 1995; Weinstein, 1994). In

fact, it has been argued that helping students identify what study strategies are effective for them by focusing on their personal learning style, is a beneficial life skill (Gettinger & Seibert, 2002; Winne, 1995; Zimmerman, 1995; Zimmerman & Schunk, 2001).

Learning and study strategies are behaviors and thoughts that help students to facilitate encoding of knowledge in such a way to integrate it with previously learned knowledge and enhance the retrieval of it (Albaili, 1997; Weinstein, 1988). In essence, this is a form of self-regulation (Braten & Olaussen, 1998; Zimmerman & Schunk, 2001). Therefore, study strategies that will be focused on in this thesis to help facilitate this process for students with self-handicapping tendencies are: (a) time management, (b) note-taking strategies, (c) reading strategies, (d) motivation, and how to avoid procrastination, (e) memory strategies, (f) exam preparation strategies, and (g) exam writing (including exam anxiety) strategies.

Intervention: Teaching Effective Study Strategies

The majority of students are natural learners and do not give much thought to the learning process and the study strategies they employ (Fleet, Goodchild & Zajchowski, 1999). No two students learn and study exactly alike. Therefore, the strengths and weaknesses of individual study strategies will differ between students (Fleet et al., 1999). Claire Weinstein and David Palmer (1990) developed a course as well as a survey for measuring students' use of strategies and methods employed by students to achieve academic success. The survey designed is referred to as *The Learning and Study Strategies Inventory for High School Students* (LASSI-HS; Weinstein & Palmer, 1990) which focuses on overt and covert thoughts, beliefs, behaviors, and attitudes that students have about successful learning (Weinstein &

Palmer, 1990). Researchers believe that if students know their strengths and weakness when it comes to learning they can build on their strengths, while working on their weaker learning strategies (Fleet et al., 1999; Schunk, 1996; Weinstein & Palmer, 1990). The majority of learning researchers also suggest that students need to be taught that their beliefs, attitudes, motivation, how they think about learning (metacognition), their strategies used to make material meaningful (note-taking, memory strategies including mind maps, charts, and outlines), how they prepare for exams, and how they write exams are determining factors in what makes students successful (Fleet et al., 1999; Schunk, 1996; Weinstein & Palmer, 1990). Although, Weinstein and Palmer's work has shown positive outcomes for students they have not reviewed the effects of teaching study strategies. More specifically, they have not applied it to students with self-handicapping tendencies nor discussed the use of a personal learning profile.

Incorporating an intervention component of testing students so they can see their strengths and weaknesses by developing individual learning profiles while having students attend seminars on learning strategies, students should become more conscious on how they learn personally. Students' ability to learn may improve as students become more cognizant about the learning process (Weinstein & Palmer, 1990). Zimmerman and Schunk (2001) have found that the use of effective study strategies does improve a student's academic performance. As academic performance improves, the number of effective and metacognitive study strategies used by students also improves (Zimmerman, 1995; Zimmerman & Schunk, 2001). However, students with self-handicapping tendencies tend to use ineffective study strategies such as less elaborative and information processing, and have poor concentration resulting in

reduced use of time management strategies and poor test-taking strategies which have negative effects on their motivation. All of this combined may be what adds to their already increased levels of anxiety.

There is a weakness in the literature in that it does not address how to help students overcome the use and effects of self-handicapping tendencies (perceptions, beliefs, and strategies) as the literature deals with one of the five predictors (use of self-handicapping strategies). In addition, it is believed students with self-handicapping tendencies use ineffective study strategies yet; researchers do not deal with how to help students with self-handicapping tendencies employ more effective study strategies (Hirt et al., 2003; Midgley et al., 1996; Midgley & Urdan, 2001). Therefore, teaching students with self-handicapping tendencies how to employ effective study strategies should enhance their ability to process information and use more effective study strategies.

As students who self-handicap use more effective study strategies, they may become less focused on performance, and worry less (reducing their anxiety about their performance) about protecting their self-worth or self-esteem, thereby, reducing their use of self-handicapping strategies (Gettinger & Seibert, 2002; Schunk, 1995; Weinstein, 2001; Woolfolk, 2001; Zimmerman, 1995; Zimmerman & Schunk, 2001). In doing so, students may improve their academic perceptions, beliefs, and use of maladaptive strategies.

Overview of the Current Study

The first step in this study involved dividing students into two groups: students with and without self-handicapping tendencies. Based on the *Patterns of Adaptive Learning Survey* (PALS; Midgley, Hruda, Anderman, Anderman, Freeman, et al., 2000) students were categorized as having self-handicapping tendencies based on the academic-related perceptions, beliefs, and strategies that they employ. Unlike previous studies that only used one predictor (academic self-handicapping strategies) to categorize students, the present study used a minimum of three of the five predictors. Therefore, students met the following criteria on a minimum of three of the five predictors: (a) one standard deviation above the mean on four of the subscales (academic self-handicapping strategies, avoiding novelty, self-presentation of low achievement, and skepticism about the relevance of school for future success), and (b) one standard deviation below the mean on academic efficacy. The suggested cutoff means and standard deviations were taken from the PALS manual (see Appendix D).

Once identified, both groups completed the pretest measures of: (a) the PALS belief in intelligence or ability (goal orientations), (b) the *Learning and Study Strategies Inventory for High School Students* (LASSI-HS; Weinstein & Palmer, 1990), and (c) a demographics form. Pretest measures were followed by learning and study strategy seminars (intervention). Finally, the same pretest measures were administered after the completion of the learning and study seminars.

The study was designed to address the following questions:

1. What were the significant relations between the goal orientation (mastery, performance approach, performance avoid) as determined by subscales of the

PALS for students with and without self-handicapping tendencies? Were there positive relations between the use of performance goals and self-handicapping tendencies?

2. What were the relations between study strategies (attitude, motivation, time management, anxiety, concentration, information processing, selecting main ideas, use of study aids, self-testing, and test strategies) employed and LASSI-HS pretest scores for students with and without self-handicapping tendencies? Did students with self-handicapping tendencies have negative correlations with the ten LASSI-HS subscales or just with Attitude, Motivation, Time Management, Concentration, Anxiety, and Test Strategies?
3. Did students with and without self-handicapping tendencies differ on their endorsement of goal orientations? Did students with self-handicapping tendencies have higher mean scores on performance goal orientations?
4. Did students with and without self-handicapping tendencies differ on their use of study strategies on the LASSI-HS (i.e. Attitude, Motivation, Time Management, Anxiety, Concentration, and Test Strategies)? Did students with self-handicapping tendencies have lower mean scores on the LASSI-HS subscales?
5. Were there significant differences between and within the two groups (with and without self-handicapping tendencies) before and after the study strategies seminars (intervention) on the LASSI-HS subscales and the performance-goal orientations on the PALS?

Hypotheses

Based on the literature review some hypotheses could be made. On the other hand, some hypotheses were exploratory in nature. The specific hypotheses that were made were:

1. It was predicted that students identified as self-handicapping would differ on their goal orientations from students identified as not having self-handicapping tendencies (based on their academic-related perceptions, beliefs, and strategies). Students without self-handicapping tendencies should have had higher mean scores on mastery goals than students with self-handicapping tendencies. In addition, students with self-handicapping should have had higher performance goal orientation mean scores than students without self-handicapping tendencies as indicated on pretest mean scores.
2. It was predicted that there would be differences on the LASSI-HS subscales of Attitude, Motivation, Time Management, Anxiety, Concentration, and Test Strategies between students with and without self-handicapping tendencies. Students with self-handicapping tendencies should have had lower mean scores on the LASSI-HS subscales compared to students without self-handicapping tendencies as indicated.
3. It was predicted that there would be significant differences between and within the two groups (with and without self-handicapping tendencies) before and after the study strategies seminars (intervention) on LASSI-HS subscales and performance-goal orientations on the PALS.

CHAPTER 3

Research Methods and Design

This chapter provides a description of the students who participated in the study, and a description of the measures, and procedures that were used to respond to the questions, and test the hypotheses that were presented in Chapter 2. In addition, ethical practices will be discussed with the procedures used in the study.

Participants

Participants were recruited from three self-paced high schools (Calgary Catholic School District and Edmonton Catholic School District). The three schools were selected as their administration was interested in characteristics of students who attend self-paced learning high schools and how they could ensure that their students were effective learners. Therefore, the sample was convenient. Approximately, a total of 180 consent forms were sent to parents and students. The sample used in the present study was selected by requesting volunteers from full-time grade levels 11 and 12 in the mathematics program in one school in Calgary. The two remaining schools requested grade 11 and 12 volunteers from their social studies program. Initially, 164 participants were tested. However, the number of participants was reduced to 137 to ensure only students in grades 11 and 12 were included in the analyses. In addition, participants who had been diagnosed with learning disabilities, visual impairments, and brain injuries, or who had withdrawn from the study were also omitted from the analyses. In the final sample of 137, there were 66 participants from grade 11 (*Age* = 16.35 years, *SD* = .29 years; 21 males, 45 females), and 71 from grade 12 (*Age* = 17.34 years, *SD* = .52 years; 30 males, 41 females). The education level of parents of students was a minimum of

some college or university (75.9% mothers, 80.3% fathers) suggesting a predominantly middle class population (Entwisle & Astone, 1994).

Procedure

An ethics proposal was developed for the study, and submitted for review by the Department of Educational Psychology Research and Ethics Committee at the University of Alberta. After ethics approval by the Department of Educational Psychology Research and Ethics Committee, the ethics proposal was submitted to the Cooperative Activities Program for their approval. The Cooperative Activities Program acts as a liaison between the various Edmonton and area district school boards and the University of Alberta when conducting research in the Edmonton and surrounding school districts. The proposal outlined the purpose of the study, procedure used to collect data, copies of the measures, and the methods used to obtain informed consent to ensure confidentiality of each participant.

The study was requested by three principals from high schools that are members of the Canadian Coalition of Self-Directed Learning Schools (CCSDL). After numerous conversations with the principals involving discussions of student's strengths and weaknesses, and trends in the literature regarding students who have maladaptive learning perceptions and behaviors, it was determined that the study would commence as a pilot project involving subsets of students from each of the schools. Therefore, the study was conducted at two high schools in Calgary and one high school in Edmonton, Alberta. In order to maintain continuity each of the schools selected a primary teacher advisor to assist in the administration and act as the main contact between the researcher and the school.

To maintain confidentiality of the students and the schools involved, the schools were numbered 1, 2, and 3 in the order that the administration and teaching of the seminars occurred. All students in grades 11 and 12 were asked to volunteer for the study that were enrolled in mathematics at school 1, and those enrolled in Social Studies for both schools 2 and 3. Each student received a letter of intent and consent forms for both students and parents/guardians as seen in Appendix A.

After the student participants had been determined through the return of their own and their parents/guardians signed consent forms, identification numbers were assigned to each participant. Following the receipt of the signed consent forms all surveys were administered. The survey data was administered in October and November of 2003 based on school holidays and timetables. The surveys were initially administered in one large group. For students who were unable to attend the initial testing time, they were tested on an individual basis. During the administration of the measures, students were informed that the surveys were not tests, and there were not correct or incorrect answers.

Surveys were administered in the following order: (a) demographics form, (b) *Patterns of Adaptive Learning Survey* (PALS; Midgley et al., 2000), and (c) the *Learning and Study Strategies Inventory for High School Students* (LASSI-HS; Weinstein & Palmer, 1990). The completion of the demographics form took students approximately 3 to 5 minutes. This was followed by the administration of the PALS survey. The PALS survey took approximately 20 to 30 minutes for the majority of students to complete. The third measure administered was the LASSI-HS which took

approximately 20 to 30 minutes to complete and self-score. Each of these measures is described in a section titled "Measures".

After completion of the surveys, a student learning profile was compiled for each student. At this time, the results of the surveys were reviewed with each student individually. The student learning profile consisted of their strengths and two weaknesses as indicted on their scores of the PALS and LASSI-HS measures. In addition, each student received the student copy of the LASSI-HS. A copy of the student learning profile was also given to their respective teacher advisor, only if the student requested it. At this time, time management, the first of the six or seven study strategy seminars was taught. The researcher taught all seminars in all three of the schools. Attendance was taken during each of the study strategy seminars. The six or seven study strategy seminars were taught every two weeks or every week depending on the holiday and activity schedules at each school. The seminars were taught in the following order (a) time management, (b) note-taking, (c) reading, (school 3 combined note-taking, and reading into one seminar) (d) memory, (e) motivation, and how to avoid procrastination, (f) exam preparation, and (g) exam writing, and anxiety. Seminars were offered at three to four times a day with additional sessions two weeks later for students who may have missed the seminar unless otherwise dictated by school schedules.

Handouts for each of the seminars were given to each student who attended the seminars. Students who could not attend the seminars had an option of meeting with the researcher individually to go over the information they had missed if they were unable to attend the make-up sessions.

Throughout the course of the study each student was monitored for questions, concerns, and updates in daily or weekly meetings with the researcher. These meetings were also scheduled as standard practice at each of the self-directed learning schools involved in the study with the student's teacher advisor. The teacher advisors worked diligently to ensure participation of all students in the study by supplying student reminders to each student, posting signs in the hallways and classrooms, as well as ensuring that the sessions were advertised in the daily school bulletins.

After completion of the study strategies seminars, all three measures were administered once again during the last two weeks in May. In addition, a revised learning profile based on the posttest results was compiled for each student indicating their strengths and what they should continue to work in the following academic year (see Appendix B for a sample copy).

Measures

Three different measures where used to gather the required information. The measures include (a) demographic sheet, (b) *Patterns of Adaptive Learning Survey* (PALS), and (c) the *Learning and Study Strategies Inventory for High School Students* (LASSI-HS). A brief review of each measure is discussed below.

Demographic Information

Students were asked to fill out a demographic form supplying information on what school they were registered in, grade level, gender, and the level of mother's education and father's education was used as a measure of socioeconomic status (SES). Gender was coded as a dichotomous variable with 1=male, and 2=female. Students were asked to indicate the highest level of education for each parent based on a five

point Likert-type scale with 1 (did not finish high school) to 5 (went beyond college, and university (i.e.: graduate school)) (Entwisle & Astone, 1994; Midgley et al., 1996). This scale was used in previous research and was recommended as a measure of parental capital (Entwisle & Astone, 1994; Midgley et al., 1996). According to Entwisle and Astone, the mother's parental education is rarely missing in most surveys and is highly correlated with the father's level of education. They also suggest the use of the mother's parental education due to the high correlations with socioeconomic status of both parents; however, for the current study the researcher chose both mother's and father's level of education to be included (see Appendix C).

Patterns of Adaptive Learning Survey Measure

The second measure administered was the *Patterns of Adaptive Learning Survey* (PALS) which was used to assess students' academic-related perceptions, beliefs, and strategies. These items combined, helped to identify students who used self-handicapping strategies and who had self-handicapping tendencies based on their academic-related perceptions, beliefs, and strategies employed (Midgley et al., 2000). The PALS was also used to assess students' goal orientation such as mastery, performance-approach, and performance-avoid. It is comprised of three primary scales consisting of various subscales; however, only two of the scales consisting of 43 questions were used for the purposes of the present study. Refer to Appendix D for a breakdown of the questions.

The two primary scales used in this study were (a) Academic-Related Perceptions, Beliefs, and Strategies (predictors of use of self-handicapping tendencies), and (b) Belief in Intelligence or Ability (goal orientations). Each of the primary scales is

further divided into subscales composed of approximately 5 to 8 questions. Responses to each question used five point Likert-type questions with 1 (*strongly disagree)* to 5 (*strongly agree*). The primary scales have been used on elementary, middle (junior), and college students, and also with low to middle income socioeconomic status of the participating districts (Midgley et al., 2000).

Academic-related perceptions, beliefs, and strategies. The use of self-handicapping tendencies was assessed using the primary scale *Academic-Related Perceptions, Beliefs, and Strategies* which measures all factors that are believed to be predictors used to identify students who self-handicap or may be at risk for self-handicapping tendencies (see Appendix D for means and standard deviations for the subscales). The five subscales of *Academic-Related Perceptions, Beliefs, and Strategies* are (a) *Academic Efficacy*, (b) *Academic Self-Handicapping Strategies*, (c) *Avoiding Novelty*, (d) *Self-Presentation of Low Achievement*, and (e) *Skepticism about the Relevance of School for Future Success*. A brief description and an example of a typical question associated with each of the subscales and their corresponding Cronbach's alpha reliability coefficients are presented next.

Academic Efficacy subscale measures personal beliefs about students' academics (e.g. item, "I'm certain I can master the skills taught in my studies this year.") (*alpha* = 0.78).

Academic Self-Handicapping Strategies subscale measures their use of self-handicapping strategies (e.g. item, "Some students purposely get involved in lots of activities. Then if they don't do well on their course work, they can say it is because they were involved with other things. How true is this of you?") (*alpha* = 0.86).

Avoiding Novelty subscale measures if students avoid new and novel situations (e.g. item, "I prefer to do work as I have always done it, rather than trying something new."). (*alpha* = 0.78).

Self-Presentation of Low Achievement subscale measures how they present their academic achievement to others (e.g. item, "It is very important to me that I don't look smarter than others in studies.") (*alpha* = 0.78).

Skepticism about the Relevance of School for Future Success subscale measures how strong they think the relationship is between school academics, and future success (e.g. item, "Doing well in school won't help me have a satisfying career when I grow up.") (*alpha* = 0.83).

Belief in intelligence or ability (goal orientations). For measuring students' beliefs in ability and academic goal orientations the primary scale, *Belief in Intelligence or Ability* subscale of the PALS was used (Midgley et al., 2000). Belief in Intelligence or Ability is divided into three subscales (a) *Mastery Goal Orientation,* (b) *Performance-Approach Goal Orientation,* and (c) *Performance-Avoid Goal Orientation.* For the purpose of the study the subscale *Belief in Intelligence or Ability* will be referred to as *Goal Orientations* for purposes of analyses, results and discussion. A brief description and an example of a typical question associated with each of the subscales and their corresponding Cronbach's alpha reliability coefficients are presented next.

Mastery Goal Orientation subscale measures how students focus on learning, more than performance or ability (e.g. item, "It's important to me that I improve my skills this year.") (*alpha* = 0.85).

Performance-Approach Goal Orientation subscale measures students focus on ability, and if they protect their ability (e.g. item, "One of my goals is to look smart in comparison to the other students in my studies.") (*alpha* = 0.89).

Performance-Avoid Goal Orientation subscale measures how much students worry and avoid situations where their ability may be challenged, and if they try to hide their performance or ability (e.g. item, "It's important to me that my teacher doesn't think that I know less than others in my grade.") (*alpha* = 0.74). Refer to Appendix D for the breakdown of the questions.

The PALS has been used both in longitudinal studies and cross-sectional research numerous times (Anderman, Urdan & Roeser, 2003; Midgley et al., 2000). In addition, the primary scales of the PALS have been found to be stable and consistent over time in longitudinal studies (Anderman et al., 2003; Midgley et al., 2001). The results of studies conducted with seven different samples of elementary and middle class students were used to determine internal consistency, stability, and construct validity of the subscales on the PALS. When ability goals scales of the PALS were compared with those developed by Nicholls and colleagues (1998) on task and ego goal orientations evidence for convergent validity (.63 for ego-orientations and ability-approach goal orientation; .67 for the two task-orientation goals) was provided (Midgley et al., 1998). Additional analyses of confirmatory factor analyses provided discriminant validity for the PALS scales (Midgley et al., 1998). The reliabilities on the three subscales of the Belief in Intelligence or Ability primary scale are similar to reliabilities that were found in other studies by Midgley and colleagues (Midgley et al., 1996; Midgley et al., 2001; Midgley & Urdan, 2001).

The words in some of the questions in the subscales were an adaptation of the PALS (Midgley, et al, 2000). The adaptation to the scales involved changing the words "class" in the statements to "in your studies" as participants in the study did not have traditional classroom instruction, as they were from self-directed learning schools. In addition, the words "class work" were changed to "course work" through the permission of the authors of the instrument.

Learning and Study Strategies Inventory – High School Version

The third measure was used for measuring students' study strategies. The students completed the *Learning and Study Strategies Inventory for high school students* (LASSI-HS). The LASSI-HS was developed to measure the use of learning strategies, study strategies, and methods student's use for academic success (Weinstein & Palmer, 1990). Weinstein and Palmer (1990) designed the LASSI-HS in order to assess students' overt and covert thoughts, attitudes, beliefs, and behaviours. Specifically, they were interested in how all of these components related to successful learning.

The LASSI-HS is composed of 10 subscales (totaling 76 self-report items) in a five point Likert-type format. The 10 subscales are (a) Attitude, (b) Motivation, (c) Time Management, (d) Anxiety, (e) Concentration, (f) Information Processing, (g) Selecting Main Ideas, (h) Study Aids, (i) Self-Testing, and (j) Test Strategies. Descriptions, and an example of a typical question associated with each of the subscales, and their corresponding Cronbach's alpha reliability coefficients are reported as follows.

The *Attitude* subscale measures students' scores measure their attitudes and motivation towards succeeding in school and performing tasks that are school related. It includes items such as, "I feel confused, and undecided as to what my educational goals should be." (*alpha* = 0.74).

The *Motivation* subscale measures the degree to which students accept responsibility for performing specific tasks that are related to success at school. A sample item is, "When work is difficult I either give up or study only the easy parts. (*alpha* = 0.78).

The *Time Management* subscale measures the use of time management principles assesses the degree to which students tend to create and use schedules. A sample item is, "I only study when there is the pressure of a test." (*alpha* = 0.77).

The *Anxiety* subscale measures anxiety and worry about school performance measure the intensity and anxiousness that students have when approaching academic tasks. A sample item is, "I am very tense when I study." (*alpha* = 0.82). This is a reverse scale in that the lower the score, the more anxiety the student possesses.

The *Concentration* subscale measures concentration and attention to academic tasks measures students' abilities to concentrate and maintain their attention of academic tasks and study activities. A sample item includes, "I find that when my teacher is teaching I think of other things, and don't really listen to what is being said." (*alpha* = 0.82).

The *Information Processing* subscale measures information processing of acquiring knowledge and reasoning focuses on how students use elaboration and organizational strategies to help with understanding and recalling information. A

sample item would be, "I try to think through a topic, and decide what I am supposed to learn from it rather than just read it over when doing schoolwork." (*alpha* = 0.80).

The *Selecting Main Ideas* subscale measures selecting main ideas and recognizing important information measures students' ability to select the important information to concentrate on for further studying whether they are in a classroom or autonomous learning situation. A sample item is, "I have a hard time finding the important points in my reading." (*alpha* = 0.71).

The *Study Aids* subscale measures the use of support techniques and materials. It includes students' ability to use or create study aids that will help them to understand and retain the information they are studying. It includes items such as, "When they are available, I go to study or review sessions." (*alpha* = 0.68).

The *Self-Testing* subscale measures self-testing, reviewing, and preparing for class test if students recognize and use self-testing methods, and if they monitor their comprehension of material prior to an exam situation. It includes items such as, "I stop often while reading, and think over or review what has been said." (*alpha* = 0.74).

The *Test Strategies* subscale measures test strategies and preparing for tests scores students' ability to effectively use test-taking and test preparation strategies. A sample item is, "I have difficulty adapting my studying to different types of subjects." (*alpha* = 0.81).

The use of the total score for all ten subscales is not recommended instead, Weinstein, and Palmer (1990) recommended using subscale profiles for each of the high school grade levels. In addition, the LASSI-HS has percentile norms provided for the individual high school grades for further comparisons and analyses. For the purpose of

this study the raw scores were converted to percentiles as outlined in the LASSI-HS User's Manual. Also mentioned in the manual, when the norms were developed, the researchers calculated high test-retest correlations (Weinstein & Palmer, 1990). In addition, tests have been performed on validity of the LASSI-HS where scales scores were compared to other tests measuring similar factors, and the scales have been validated against performance measures (Olivarez Jr. & Tallent-Runnels, 1997; Holschuh, Nist & Olejnik, 2001; Weinstein & Palmer, 1990). With the repeated tests of user validity in more than 700 schools, colleges, and universities very few problems have been reported while high degrees of usefulness have been reported (Weinstein & Palmer, 1990). The LASSI (a version for college, and university students) has also been repeatedly used in a learning-to-learn course as part of Weinstein and Palmer's Cognitive Learning Strategies Project where approximately 1000 students enroll in a 3-credit elective course the help prepare students academically while attending college (Weinstein & Palmer, 1990). By completing the LASSI-HS, students' learning strengths, and weaknesses may be identified.

The psychometric properties of the LASSI-HS were examined by Olivarez Jr., and Tallent-Runnels (1997). The reliabilities, and validities calculated were very high, and ranged from 0.93 to 0.97. The results from the LASSI-HS provide teachers with information to help students focus on areas in which they need improvement (Weinstein & Palmer, 1990).

Intervention: Study Strategy Seminars

The *Learning and Study strategy seminars* were based on the learning-to-learn course that was developed by Weinstein and Palmer (1990) in their Cognitive Learning

Strategies Project to compliment their work on the LASSI-HS. In addition, the Academic Support Centre at the University of Alberta developed instructional seminars and handouts to help students who required academic support. The handouts used in the study were adapted with permission from Dr. Karen Kovach, the Learning Resource Director at the Academic Support Centre at the University of Alberta (personal communication, July 2003). However, additional information was added that was not included in the handouts from the Academic Support Centre that would further aid high school students in their learning of study strategies as suggested in research by Schunk, Woolfolk, Zimmerman, and other prominent cognitive strategy researchers.

The number of seminars suggested ranged from six to seven depending on whether note-taking and reading were combined were combined into one seminar based on individual school schedules.

CHAPTER 4

Results

The results section will focus on: (a) presenting reliabilities for the current study, (b) general descriptive statistics, and (c) answers the specific questions and hypotheses.

Reliabilities

Cronbach's alpha reliability coefficients were calculated for each of the subscales for both the pretest and posttest results for the PALS (see Table 1) and LASSI-HS (see Table 2) measures.

Descriptives

Selection of Students with Self-Handicapping Tendencies

In order to determine students with and without self-handicapping tendencies, students who had mean scores plus or minus one standard deviation (as indicated in the "Overview of the Study") on a minimum of three of the five subscales were categorized as having self-handicapping tendencies (perceptions, beliefs, and strategies). For example, students may test mean score minus one SD on Academic Efficacy plus the mean score plus on SD on Academic Self-Handicapping and Avoiding Novelty. This is different from other studies that only used one predictor, Academic Self-Handicapping Strategies to identify the self-handicapping group. Similar selection criteria were used in previous studies to select groups of students who self-handicap (Hirt et al., 2003; Smith, Sinclair & Chapman, 2002; Urdan & Midgley, 2001).

Table 1

Cronbach's Alpha Reliability Coefficients for the Pretest and Posttest Administration of the PALS Subscales for All Students

Subscale	Pretest α	Posttest α
Academic-related perceptions, beliefs, and strategies		
Academic efficacy	0.90	0.91
Self-handicapping strategies	0.81	0.84
Avoiding novelty	0.85	0.91
Self-presentation of low achievement	0.82	0.89
Skepticism about the relevance of school for future success	0.83	0.86
Belief in intelligence or ability (goal orientations)		
Mastery goal oriented	0.87	0.92
Performance-approach goal oriented	0.87	0.93
Performance-avoid goal oriented	0.69	0.79

Note: n = 137 pretest, n = 88 posttest

Table 2

Cronbach's Alpha Reliability Coefficients for the Pretest and Posttest Administration of the LASSI-HS Subscales for All Students

Subscale	Pretest α	Posttest α
Attitude	0.78	0.77
Motivation	0.82	0.79
Time management	0.83	0.80
Anxiety	0.87	0.89
Concentration	0.88	0.87
Information processing	0.81	0.89
Selecting main ideas	0.76	0.85
Study aids	0.67	0.72
Self-testing	0.83	0.85
Test strategies	0.84	0.86

Note: n = 113 pretest, n = 80 posttest

Fifty-four students out of 137 met the criteria and were coded as students with self-handicapping tendencies and 83 students were coded without self-handicapping tendencies based on pretest scores on the PALS.

The same statistical method was used on the posttest measures of the PALS to determine students with self-handicapping tendencies (n = 29) and students without self-handicapping tendencies (n = 59) for the students who completed the posttest measures.

The reduction in numbers of participants between pretest and posttest measures was due to students not completing the required posttests. The attrition rates for students with self-handicapping tendencies (46.30%) and students without self-handicapping tendencies (28.92%) were significantly different, $F(1, 135) = 14.62$, $p < .001$. It is not clear why this would be the case. One possible explanation may be that the posttest measures were conducted close to the time of diplomas and final examinations. This would need to be explored further in future studies.

In addition, students attended a mean of 2.72 (SD = 2.21) seminars for students without self-handicapping tendencies and 3.11 (SD = 2.00) seminars for students with self-handicapping tendencies out of six or seven learning and study strategy seminars. No significant difference, $F(1, 135) = 1.09$, *ns*, $p = .30$, was found between differences in the attendance levels of the groups. Similarly, there was no significant difference, $F(1, 135) = .35$, *ns*, $p = .71$, with the number of times students met with the researcher 1.11 (SD = 1.99) times for students without self-handicapping tendencies and 1.19 (SD = 1.33) times for students with self-handicapping tendencies. Therefore, if any differences found between the groups (with and without self-handicapping tendencies)

on posttest measures it wad not be due to differences in attendance or number of times the students met with the researcher.

Results by Question/Hypotheses

Relations between Predictors of Self-Handicapping Tendencies and Goal Orientations

The first question investigated if there were different relations between the predictors of self-handicapping tendencies and the goal orientations each group (with or without self-handicapping tendencies) employed.

Pearson correlation coefficients (2-tailed) were used to review the different relations in the goal orientations (mastery, performance approach, and performance avoid) that each group (with and without self-handicapping tendencies) employed, based on pretest mean scores on the PALS (see Table 3).

Students with self-handicapping tendencies. It was found that students with self-handicapping tendencies displayed positive relations between Academic Self-Handicapping Strategies and all three goal orientations. Performance approach and performance avoid goals were correlated with self-handicapping strategies, while mastery goal orientation was also positively correlated. These correlations are small to moderate in magnitude and therefore need to be interpreted cautiously.

In addition, both performance goals were strongly correlated suggesting that they may be measuring similar behaviors and attitudes for this group of participants. It may have indicated that students can endorse both performance goals simultaneously. These results suggested that this group of students (with self-handicapping tendencies) may have academic-related perceptions, beliefs, and use strategies that are related to a

Table 3

Pretest Pearson Correlation Coefficients for Subscales of Predictors of Self-Handicapping and Goal Orientations Based on Pretest Scores for Students with and without Self-Handicapping Tendencies

	Students with self-handicapping tendencies							
	AE	SH	AN	LA	RS	MAST	PAPP	PAV
Students without self-handicapping tendencies								
Academic efficacy (AE)	--	.16	-.30*	.40**	.24	.33**	.08	.20
Self-handicapping strategies (SH)	-.08	--	.23	.05	.14	.14*	.36**	.28*
Avoiding novelty (AN)	-.21	.16	--	-.24	.21	-.42**	.14	-.02
Low achievement (LA)	-.19	.07	.06	--	-.18	.14	-.16	.25*
Relevance of school (RS)	-.03	.06	.29**	-.00	--	-.16	.17	-.04
Mastery (MAST)	.23	-.16	-.08	-.05	-.27*	--	.20	.32**
Performance approach (PAPP)	.04	.21	-.04	-.03	-.29*	.10	--	.53**
Performance avoid (PAV)	.19	.20	-.00	.26*	-.33**	.15	.60**	--

Note: $n = 54$ students with self-handicapping tendencies, $n = 83$ students without self-handicapping tendencies

* $p < 0.05$ level (2-tailed), ** $p < 0.01$ level (2-tailed)

combination of behaviors and attitudes associated with each of the three goal orientations.

As expected, there was a significant negative correlation with avoiding novelty and mastery goal orientation. Similarly, a significant positive correlation was found as expected between Academic Efficacy and Mastery goal.

In addition, all measures associated with self-handicapping tendencies (Academic Efficacy, Self-Handicapping Strategies, Avoiding Novelty, Self-Presentation of Low Achievement, and Relevance of School for Future Success) were not as highly related as would be expected. This may have indicated that the subscales may not be as highly predictive of self-handicapping tendencies based on these perceptions, beliefs and use of strategies. Alternatively, the method used for identifying and grouping the students may not have been the most viable method.

Students without self-handicapping tendencies. The only significant negative relations were between Relevance of School and all three of the goal orientations. Surprisingly, the correlations suggested that for students without self-handicapping tendencies goal orientations were not significantly correlated to the five main self-handicapping predictors.

The positive relations were between Relevance of School for Future Success and Avoiding Novelty. This was a moderate correlations suggesting that the more students believe that school is not predictive of future success the more likely they will avoid new and novel situations. However, this should be interpreted with caution.

In addition there were positive correlations between all three goal orientations (mastery, performance approach, and performance avoid). The strong positive

correlation between performance approach and performance avoid suggested that students may endorse both goal orientations simultaneously and that both orientations may display similar behaviors.

Relations between Predictors of Self-Handicapping Tendencies and Study Strategies

The second question was concerned with the relations between the predictors of self-handicapping tendencies (Academic Efficacy, Self-Handicapping Strategies, Avoiding Novelty, Self-Presentation of Low Achievement, and Relevance of School for Future Success) and the study strategies (LASSI-HS subscales) employed by each of the groups (with and without self-handicapping tendencies) (see Table 4).

Pearson correlation coefficients (2-tailed) were used to review the different associations in the use of study strategies (Attitude, Concentration, Time Management, Motivation, Anxiety, Information Processing, Selecting Main Ideas, Use of Study Aids, Self-Testing, and Test Strategies) that each group (with and without self-handicapping tendencies) employed.

Students with self-handicapping tendencies. There were 54 students with self-handicapping tendencies. Four of the five predictors used for classifying students with self-handicapping tendencies (Academic Efficacy, Self-Handicapping Strategies, Avoiding Novelty, and Self-Presentation of Low Achievement) had moderate to strongly significant relations with many of the LASSI-HS subscales. These four academic beliefs and perceptions subscales (Academic Self-Handicapping, Avoiding Novelty, Self- Presentation of Low Achievement, and Academic Efficacy) may be connected to how this group of students used study strategies. In order to assess their

Table 4

Pretest Pearson Correlation Coefficients for Subscales of Predictors of Self-Handicapping and LASSI-HS Subscales Based on Pretest Scores for Students with and without Self-Handicapping Tendencies

	Students with self-handicapping tendencies (n=54)														
	AE	SH	AN	LA	RS	ATT	MOT	TMT	CON	ANX	INP	SMI	STA	SFT	TST
Students without self-handicapping tendencies (n=83)															
Academic efficacy (AE)	--	-.16	-.30*	.40**	.24	.30*	.20	.12	.17	.42**	.36*	.48**	.46**	.41**	.39**
Self-handicapping strategies (SH)	-.08	--	.23	.05	.14	-.45**	-.60**	-.55**	-.52**	-.45**	-.11	-.28	-.21	-.37	-.48
Avoiding novelty (AN)	-.21	.16	--	-.24	.21	-.39**	-.29*	-.40**	-.31*	-.15	-.27	-.29*	-.27	-.46**	-.39**
Low achievement (LA)	-.19	.07	.06	--	-.18	.43**	.16	.05	.14	.01	.12	.32*	.36*	.36*	.31*
Relevance of school (RS)	-.03	.06	.29**	-.00	--	-.16	-.27	-.22	.06	.22	.05	.15	-.10	-.16	.02
Attitude (ATT)	.25*	-.24	-.23	.04	-.33**	--	.49**	.37**	.45**	.29*	.30*	.37**	.24	.47**	.52**
Motivation (MOT)	.24	-.49**	-.13	.01	.01	.58**	--	.71**	.65**	.27	.20	.30*	.39**	.51**	.47**
Time management (TMT)	.09	-.49**	-.20	-.03	-.09	.46**	.75**	--	.74**	.45**	.12	.25	.33*	.55**	.49**
Concentration(CON)	.13	-.53**	-.20	-.09	-.11	.57**	.74**	.80**	--	.43**	.15	.52**	.34*	.57**	.71**
Anxiety (ANX)	.25*	-.26*	-.11	-.30*	-.06	.32**	.31*	.23	.44**	--	.18	.33*	.15	.26	.62**
Information processing (INP)	.46**	-.12	-.02	-.03	-.02	.33**	.42**	.30*	.33**	.26*	--	.36*	.40**	.50**	.23
Selecting main ideas (SMI)	.35**	-.22	-.11	-.10	-.15	.31*	.45**	.39**	52**	.49**	.57**	--	.43**	.55**	.70**
Study aids (STA)	.04	-.25*	.21	-.07	.03	.21	.44**	.37**	-.03	.41**	.39**	.22	--	.60**	.28
Self-testing (SFT)	.20	-.43**	-.01	-.05	-.09	.41**	.70**	.68**	.36**	.65**	.51**	.57**	.60**	--	.44**
Test strategies (TST)	.29*	-.33**	-.20	-.18	-.15	.42**	.38**	.31**	.77**	.55**	.26*	.63**	-.07	.37**	--

role in the development and maintenance of study strategies further investigation is warranted. For example, the self-handicapping strategies subscale negatively correlated with five (Attitude, Motivation, Time Management, Concentration, and Anxiety) of the ten subscales on the LASSI-HS. Therefore, the more this group of students reported self-handicapping strategies the lower their reports on attitude, concentration, motivation, and use of time management strategies.

Similarly, Avoiding Novelty had moderate negative correlations with Attitude, Motivation, Concentration, Time Management, Selecting Main Ideas, Self-Testing, and Test strategies. This implied that the more students avoided novel situations the less likely they would employ these strategies. These results support literature in that the effects from the use of self-handicapping strategies and avoiding novel situations are related to students' use of ineffective study strategies (Schunk, 1996).

On the Self-Presentation of Low Achievement subscale, students had moderate positive correlations with Selecting Main Ideas, Use of study aids, and Self-testing. This was interesting, as it implied that the more students think about their ability and worry about how to present low achievement outcomes the more likely they would use study aids, self-test, and try to select the main ideas on the task they are working on. This supported research by Schunk, Zimmerman, and Weinstein (Schunk, 1996; Weinstein, 2001; Schunk & Zimmerman, 2001).

In addition, the majority of the LASSI-HS subscales had significant and positive correlations with each of the other LASSI-HS subscales. These correlations were moderate to strong in magnitude suggesting that the subscales were measuring similar attributes, characteristics, or abilities for this group of students.

Students without self-handicapping tendencies. There were 83 students classified as not having self-handicapping tendencies. Academic Efficacy had significant positive correlations with Attitude, Anxiety, Information Processing, Selecting Main Ideas, and Test Strategies. This suggested that efficacy is related to how students process the information they are learning (Selecting Main Ideas, and Information Processing) and if they believe that they are capable (Academic Efficacy and Attitude) the better they will use test strategies. In addition, the more capable they feel they are (Academic Efficacy) the less anxious they will be (anxiety was a reverse scale). This supports research by Bandura, Schunk, and Zimmerman (Bandura, 1997; Zimmerman & Schunk, 2001).

Academic Self-Handicapping had strong negative correlations with Motivation, Time Management, Concentration, and Self-Testing. It also had moderate correlations with Anxiety, Use of Study Aids, and Test Strategies. Once again, this supported research by Zimmerman and Schunk in that the more students are focused on social comparisons and worry (use of self-handicapping strategies), the less likely they will be motivation, the poorer their concentration, and the less they use goals and time management strategies. These together have negative affects on students' test taking abilities (Weinstein, 2001).

There were similarities in the directionality of the relations on similar subscales for both groups (with and without self-handicapping tendencies). For example, both groups displayed moderate to strong relations and similar directionality in the use of academic self-handicapping strategies. Both groups had strong correlations on

Motivation, Time Management, and Concentration. In addition, both groups displayed similar directionality in the correlations on the Anxiety subscale.

Reviewing the relationships of the predictors (perceptions, beliefs, and strategies) of self-handicapping tendencies, students with self-handicapping tendencies has significant negative correlations between Academic Efficacy and Avoiding Novelty, Academic Efficacy and Self-Presentation of Low Achievement, and Academic Self-Handicapping Strategies and Attitude subscale on the LASSI-HS. These significant relations disappeared in the relations with students without self-handicapping tendencies. Similar disappearances in the relations occurred with Avoiding Novelty and the LASSI-HS subscales. This suggested that there were differences in the relations between the academic-related perceptions, beliefs, and strategies use by the groups (with and without self-handicapping tendencies) and their use of study strategies.

In addition, similar to the students with self-handicapping tendencies, the majority of the LASSI-HS subscales had significant and positive correlations with each of the other LASSI-HS subscales. These correlations were moderate to strong in magnitude suggesting that the subscales were measuring similar attributes, characteristics, or abilities for this group of students.

Differences between Goal Orientations Employed by Each Group (with and without Self-Handicapping Tendencies)

Question 4 explored the differences in the goal orientations employed by two groups of students. It was hypothesized that the groups (with and without self-handicapping tendencies) should differ on mastery and performance goal orientations.

Students with self-handicapping tendencies should have lower mean scores on mastery goals and higher means on performance goals (see Table 5).

To assess whether there were any differences in the use of goal orientations between students with and without self-handicapping tendencies on pretests measures, univariate analysis of variance (ANOVA) were conducted with students in the self-handicapping category (with or without self-handicapping tendencies) as the independent variable and the three types of goal orientations (mastery, performance-approach, and performance-avoid) as the dependent variable.

As expected, significant differences were found on the pretest scores as students without self-handicapping tendencies reported higher mastery goal orientation mean scores than students with self-handicapping tendencies. However, no significant differences were found between students with and without self- handicapping tendencies on performance-approach or performance-avoid goal orientations. In addition, both groups had higher mastery goal orientation mean scores than performance goal orientations mean scores. This was not expected, as the literature suggested that students with self-handicapping tendencies (perceptions, beliefs, and strategies) were more likely to report more performance goals. Given these inconsistent findings, it would be informative to assess the feasibility of endorsing one specific goal orientation.

Differences between Study Strategies Employed by Each Group (with and without Self-Handicapping Tendencies)

Question 5 explored the differences between the two groups (with and without self-handicapping tendencies) and their use of study strategies. It was hypothesized that

Table 5

F-Tests, Means, and Standard Deviations as Indicated by ANOVA between Students with and without Self-handicapping Tendencies on PALS Subscale for Goal Orientations on Pretest Scores

	Students without self-handicapping tendencies		Students with self-handicapping tendencies		ANOVA	
Subscale	*M*	*SD*	*M*	*SD*	*F*	*Sig.*
Mastery	4.23	.73	3.85	.88	7.38**	.01
Performance approach	2.45	.94	2.26	.92	1.40	.24
Performance avoid	2.99	.90	2.98	.84	.00	.95

Note: $n = 54$ for Students with self-handicapping tendencies, $n = 83$ for Students without self-handicapping tendencies.

** $p < 0.01$ level, * $p < 0.05$ level

students with self-handicapping tendencies would differ significantly on Attitude, Motivation, Time Management, Anxiety, Concentration, and Test Strategies subscales of the LASSI-HS (see Table 6).

To assess whether there were any differences between students with and without self-handicapping tendencies in their use of learning and study strategies as indicated by their pretest LASSI-HS scores, univariate analysis of variance (ANOVA) was employed. The category of students with or without self-handicapping tendencies was the independent variable, and the each of the 10 subscales (Attitude, Motivation, Time Management, Anxiety, Concentration, Information Processing, Selecting Main Ideas, Use of Study Aid, Self-Testing, and Test Strategies) of the LASSI-HS were the dependent variables.

It was found that all of the subscales that were predicted to have lower mean scores did so, except the Anxiety subscale. The Anxiety subscales were not significantly different indicating that both groups of students had similar reported mean levels of anxiety. The difference from the effects of anxiety may have been the way in which each group (with and without self-handicapping tendencies) used the other study strategies. It may have been the combination of other strategies employed that determined if anxiety had more negative effects on students.

In addition, Selecting Main Ideas was significantly different which may be because when students have difficulty concentrating and staying motivated, they often have problems with selecting the main ideas from the material they are studying. However, information processing mean scores was not significantly different but this same argument would have applied to how students process information.

Table 6

F-Tests, Means, and Standard Deviations as Indicated by ANOVAs between Students with and without Self-handicapping Tendencies on LASSI-HS Subscales for Pretest Scores

	Students without self-handicapping tendencies		Students with self-handicapping tendencies		ANOVA	
Subscale	*M*	*SD*	*M*	*SD*	*F*	*Sig.*
Attitude	4.08	.54	3.56	.70	19.93**	.00
Motivation	3.96	.68	3.44	.68	15.89**	.00
Time management	3.04	.89	2.61	.73	7.34**	.01
Anxiety	3.07	.88	2.86	.94	1.47	.23
Concentration	3.38	.82	2.72	.71	20.15**	.00
Information processing	3.46	.69	3.39	.67	.25	.62
Selecting main ideas	3.65	.72	3.25	.77	8.02**	.01
Study aids	3.21	.65	2.98	.62	3.35	.07
Self-testing	3.35	.77	3.04	.71	4.61*	.03
Test strategies	3.51	.77	3.06	.74	10.03**	.00

Note: $n = 47$ for Students with self-handicapping tendencies, $n = 66$ for Students without self-handicapping tendencies, ** $p < 0.01$ level, * $p < 0.05$ level

Differences in between and within Pretest and Posttest Scores for Students with and without Self-Handicapping Tendencies on Goal Orientations and Study Strategies

Differences between pretest and posttest scores for students with or without self-handicapping tendencies were explored in question 6 on both the PALS goal orientations and the LASSI-HS subscales. It was predicted that there were significant differences between and within the groups (with and without self-handicapping tendencies) on both measures (PALS goal orientations and LASSI-HS subscales).

Repeated measures univariate analysis of variance (ANOVA) was used to determine whether there were significant differences between and within both groups of students (with and without self-handicapping tendencies) on the PALS and LASSI-HS pretest and posttest subscales. The between-groups factor was the group membership (with or without self-handicapping tendencies). The within-subjects factor was each individual subscale score on the pretest and the posttest. The variables were not grouped as the numbers of participants in each group were too low in numbers to divide into ten subscales to conduct statistical analyses. In addition, by doing so the power and type I error would have been compromised.

Goal orientations. The goal orientations employed by the groups were significantly different in their endorsement of mastery goals. However, there was no significant difference in the use of performance-goal orientations (see Tables 7 and 8). This suggested that there were differences in the Mastery Goal orientation scores for each group. However, the within group difference was not significant suggesting that the behaviors and attitudes endorsed by each group and their mastery goal orientations

Table 7

Repeated Measures ANOVA between Subscales of PALS Goal Orientations Based on Pretest and Posttest Scores for Students with and without Self-Handicapping Tendencies

Subscale	*df*	*F*	η^2	*Sig.*	Φ
Mastery					
Between-Group(G)	1	4.72	.05	.03*	.56
Within-Subject (S)	1	.82	.01	.37	.15
G x S	1	.06	.00	.80	.06
Performance approach					
Between-Group(G)	1	1.60	.02	.21	.24
Within-Subject (S)	1	11.34	.11	.00*	.92
G x S	1	.44	.01	.51	.10
Performance avoid					
Between-Group(G)	1	.18	.002	.67	.07
Within-Subject (S)	1	17.42	.16	.00*	.99
G x S	1	.56	.03	.13	.33

Note: $n = 51$ students without self-handicapping tendencies, $n = 39$ students with self-handicapping tendencies

* $p < 0.05$ level

Table 8

Means and Standard Deviations as Indicated by Repeated Measures ANOVAs between Students with and without Self-handicapping Tendencies on PALS Goal Orientations

	Students without self-handicapping tendencies		Students with self-handicapping tendencies	
Subscales	*M*	*SD*	*M*	*SD*
Mastery				
Pretest	4.32	.70	3.96	.83
Posttest	4.24	.74	3.90	.84
Performance approach				
Pretest	2.55	.98	2.19	.82
Posttest	2.34	.90	2.16	.85
Performance avoid				
Pretest	3.02	.92	3.06	.75
Posttest	2.86	.92	2.67	.78

Note: $n = 51$ students without self-handicapping tendencies, $n = 39$ students with self-handicapping tendencies

* $p < 0.05$ level

did not change after the intervention. In addition, as the interaction was not significant the differences in reported mean scores between each group did not change from pretest to posttest scores.

There were no significant differences between the groups in their use of performance goals. However, there were significant within group differences in both performance goal orientations suggested that there were changes in performance goal orientations. This implied that there was a difference in use of performance goals after the intervention. Each of the groups slightly reduced (not significantly) use of mastery goals while significantly reducing their use of performance goals.

Once again, the interaction effects between performance-approach and performance-avoid goals with group membership was not significant implying that the difference in means scores between the two groups remained the same. However, there was a significant, $F(1,137) = 14.56$, $p < .001$, within-subjects contrast in use of performance-avoid goals. Students with self-handicapping tendencies reduced their reported use of performance goals more in comparison to students without self-handicapping tendencies.

Use of effective learning and study strategies. For the LASSI-HS ($n = 42$ students without self-handicapping tendencies and $n = 36$ students with self-handicapping tendencies, $p < 0.05$ level) subscales there were significant in between groups differences on Attitude, Motivation, Time Management, Concentration, and Test Strategies (see Tables 9 and 10). However, the groups did not differ on their levels of Anxiety, Information Processing, Use of Study Aids, and their Self-Testing abilities.

Table 9

Repeated Measures ANOVA between Subscales of LASSI-HS Based on Pretest and Posttest Scores for Students with and without Self-Handicapping Tendencies

Subscale	*df*	*F*	η^2	*Sig.*	Φ
Attitude					
Between-Group(G)	1	10.37	.12	.00*	.89
Within-Subject (S)	1	5.13	.06	.03*	.61
G x S	1	2.53	.03	.16	.35
Motivation					
Between-Group(G)	1	12.35	.14	.00*	.93
Within-Subject (S)	1	10.85	.13	.00*	.90
G x S	1	7.89	.13	.01*	.90
Time management					
Between-Group(G)	1	6.34	.08	.00*	.70
Within-Subject (S)	1	21.74	.07	.00*	1.00
G x S	1	5.57	.07	.02*	.64
Anxiety					
Between-Group(G)	1	.42	.01	.52	.10
Within-Subject (S)	1	31.41	.00	.00*	.06
G x S	1	.11	.00	.74	.06
Concentration					
Between-Group(G)	1	13.59	.15	.00*	.95
Within-Subject (S)	1	18.91	.20	.00*	.99
G x S	1	14.23	.16	.00*	.96
Information processing					
Between-Group(G)	1	.60	.01	.44	.12
Within-Subject (S)	1	10.71	.12	.00*	.90
G x S	1	1.47	.02	.23	.22
Selecting main ideas					
Between-Group(G)	1	2.54	.03	.12	.35
Within-Subject (S)	1	15.76	.02	.00*	.19
G x S	1	1.20	.02	.28	.19
Study aids					
Between-Group(G)	1	3.58	.05	.06	.46
Within-Subject (S)	1	35.25	.32	.00*	1.00
G x S	1	10.16	.02	.29	.17
Self-testing					
Between-Group(G)	1	4.43	.06	.06	.55
Within-Subject (S)	1	17.45	.19	.00*	.99
G x S	1	.28	.00	.60	.08
Test strategies					
Between-Group(G)	1	3.42	.04	.04*	.45
Within-Subject (S)	1	42.07	.36	.00*	1.00
G x S	1	5.01	.06	.03*	.60

Table 10

Means and Standard Deviations as Indicated by Repeated Measures ANOVAs between Students with and without Self-handicapping Tendencies on LASSI-HS Subscales

	Students without self-handicapping tendencies		Students with self-handicapping tendencies	
Subscales	*M*	*SD*	*M*	*SD*
Attitude				
Pretest	4.16	.51	3.68	.65
Posttest	4.19	.56	3.88	.66
Motivation				
Pretest	4.10	.64	3.48	.69
Posttest	4.13	.56	3.81	.66
Time management				
Pretest	3.16	.84	2.61	.71
Posttest	3.31	.79	3.06	.64
Anxiety				
Pretest	3.06	.97	2.96	.88
Posttest	3.53	.90	3.38	.90
Concentration				
Pretest	3.50	.81	2.68	.70
Posttest	3.53	.82	3.18	.65
Information processing				
Pretest	3.48	.68	3.46	.70
Posttest	3.83	.78	3.62	.85
Selecting main ideas				
Pretest	3.61	.82	3.26	.81
Posttest	3.86	.87	3.69	.72
Study aids				
Pretest	3.36	.58	3.06	.57
Posttest	3.65	.61	3.48	.67
Self-testing				
Pretest	3.48	.74	3.13	.72
Posttest	3.73	.74	3.45	.70
Test strategies				
Pretest	3.53	.82	3.09	.69
Posttest	3.82	.76	3.68	.63

The differences of between groups use of study strategies indicated that the groups (with and without self-handicapping tendencies) had different mean scores in their use of study strategies for these five subscales. On each subscale the students without self-handicapping tendencies had higher reported means scores. This confirms the literature in that students with self-handicapping tendencies tend to have poorer attitudes about school, have motivational difficulties causing concentration problems which often results in poorer test taking abilities.

The most intriguing result was that they did not differ in their levels of anxiety. This suggested that it may be the combination of levels of anxiety, concentration, motivation, and other study strategies that impacted students' perceptions, beliefs, and use of maladaptive strategies such as self-handicapping.

Based on the within-subjects results, each group's reported means scores increased significantly on all ten of the LASSI-HS subscales after the intervention. This suggested that there was some positive effects on students' use of effective study strategies for both groups (with and without self-handicapping tendencies) as the use of all study strategies improved after the intervention. However, this may have been caused by maturation or other effects that all students in the study were involved in, not necessarily the intervention.

In addition, there were significant interaction effects on Motivation, Time Management, Concentration, and Test Strategies. These results suggested that the patterns on how students were affected in each group differed on these four subscales. On each of these subscales, students with self-handicapping strategies had greater improvement on their reported scores in comparison to students without self-

handicapping tendencies. This was as expected as students with self-handicapping tendencies had lower mean scores initially and had more room for improvement. Therefore, the changes could have been explained by the intervention, time, maturation, or other effects.

CHAPTER 5

Discussion

In the current study two groups of students were distinguished: those with and without self-handicapping tendencies. The purpose of the study was to examine the relations between the two groups separately with (a) goal orientations, and (b) study strategies pretest scores of the PALS and LASSI-HS, respectively. It also compared differences between and within the two groups (with and without self-handicapping tendencies) before and after the study strategies seminars (intervention) on (a) goal orientations employed, and (b) use of study strategies.

Discussions about specific questions and hypotheses will follow in the order in which they were presented in the "Overview of the Study".

Relations between Predictors of Self-Handicapping Tendencies and Goal Orientations

Students who endorsed self-handicapping tendencies generally have (a) lower self-efficacy, (b) higher levels of avoiding new and novel situations, (c) greater use of self-handicapping strategies, (d) anxiety about the presentation of low achievement, and (e) skepticism about the relevance of school success being linked to future success (Middleton & Midgley, 1997; Midgley et al., 1996; Pintrich, 2000). In addition, these five predictors (Academic Efficacy, Self-Handicapping Strategies, Avoiding Novelty, Self-Presentation of Low Achievement, and Relevance of School for Future Success) used by students with self-handicapping tendencies were predicted to be related to performance goal orientations (Question 1).

Students with self-handicapping tendencies. As predicted, students with self-handicapping tendencies had small to moderate positive relations between self-

handicapping strategies and the two performance-goal orientations. Performance-approach and performance-avoid goals were similar in magnitude. However, there was also a small positive relation between self-handicapping strategies and mastery goal orientation. The results of lower correlations may be related to the group being relatively homogeneous. The correlations may have been lower than if we used a larger group of students with more variability in behaviors, perceptions, and attitudes that are exhibited by students with self-handicapping tendencies.

The relations between academic self-handicapping strategies and goal orientations are in line with Pintrich's (2000) work that shows there may be a specific combination of goal orientations (low mastery relation/high performance relation) related to the behaviors, beliefs, and strategies commonly associated with the use of self-handicapping tendencies. Furthermore, the relations suggested that combinations of all three goal orientations (low mastery relation/moderate performance approach relation/moderate performance-avoid relations) were related to students who endorse self-handicapping behaviors. Therefore, these relations combined with results of work of various other researchers illustrated that combinations of goal orientations needs to be further researched as how they relate to the academic-perceptions, beliefs, and strategies employed by students (Pintrich, 2000; Urdan, 2004).

For students with self-handicapping tendencies, self-presentation of low achievement had a small to moderate relation to performance-avoid goal orientation. It is believed that students with self-handicapping tendencies are overly concerned with the presentation of their low achievement and how their performance may be perceived (Albaili, 1997; Elliot & Harackiewicz, 1996; Eppler et al., 2000; Pintrich, 2000). As

both groups (with and without self-handicapping tendencies) had similar relations on this subscale it supported research by Pintrich, in that all students who focus heavily on performance-avoid goals espouse behaviors that are related similar behaviors employed by students who focus on self-presentation of low achievement.

In addition, students with self-handicapping tendencies had a negative relation between avoidance of novel situations and the use of master goal orientations. Students who self-handicap by definition worry and are anxious about performance in new and novel situations and do not necessarily master the task at hand (learning) as they are believed to be heavily focused on ability comparisons (Midgley et al., 1996). Therefore, it suggested there was a relation between mastery goal behaviors and behaviors of students who focus on avoiding novel situations and that it these behaviors may have negative effects on the use of mastery goals.

Researchers have suggested that the positive relations between self-handicapping tendencies (perceptions, beliefs, and strategies) and goal orientations are also task and context dependent (Pintrich 2000; Urdan, 2004). Therefore, students may have displayed different relations to goal orientations based on what they were thinking about at the time, or what task they had performed prior to the administration of the surveys. Future research should review if there are specific types of academic contexts and tasks (i.e. mathematics or English) that may influence the magnitude and direction of the correlations.

Students without self-handicapping tendencies. For students without self-handicapping tendencies there was only one significant correlation. Students without self-handicapping tendencies reported a small to moderate negative relation between

performance-avoid goals and the relevance of school for future success. This suggested that the more students worried about being smart, the more they felt that school success was relevant for future success. Therefore, being smart or the appearance of being smart was important for both groups of students.

The results of the study suggested that all students endorsed some mastery and performance goals, and worried about achievement and future success. An important result to further consider is whether students who endorse fewer mastery goals are more likely to endorse performance goal, and likely to employ maladaptive strategies such as self-handicapping. This goes back to Pintrich (2000) and his observation on combination goal orientations, in that all students possess more than one type of goal orientation, and that it may be the combination or levels of goal orientations used that negatively affects students' academic achievement within specific academic contexts.

Relations between Predictors of Self-Handicapping Tendencies and Study Strategies

Question 2 explored the relations between predictors of self-handicapping tendencies and students use of learning and study strategies.

Students who were thought to express perceptions, beliefs, and strategies that are characteristic of self-handicapping tendencies were believed to demonstrate lower levels of motivation and concentration, which were often related to increased levels of anxiety (Albaili, 1997; Holschuh et al., 2001; Weinstein, 2001; Zimmerman, 2000). The increased anxiety levels and the focus on social comparisons were also associated with reduced effectiveness in test strategies for students with self-handicapping tendencies (Kitsantas, 2002; Schunk, 1995).

Students with self-handicapping tendencies. According to the results, students with self-handicapping tendencies reported behaviors related to time management, concentration, motivation, and problems with their attitude. The results supported the literature that in that the predictors (Academic Efficacy, Self-Handicapping Strategies, Avoiding Novelty, Self-Presentation of Low Achievement, and Relevance of School for Future Success) of self-handicapping tendencies are correlated with students' use of study strategies (Pintrich, 2000; Schunk & Zimmerman, 2001). There were a vast number of significant moderate to strong correlations for students with self-handicapping tendencies between the predictors of self-handicapping tendencies and the LASSI-HS subscales. The correlations were significant on four of the five subscales (academic efficacy, academic self-handicapping, avoiding novelty, and self-presentation of low achievement) which suggest that these four subscales may have a greater weight in determining students who had self-handicapping tendencies for this group of students.

Students without self-handicapping tendencies. Both groups displayed relations of moderate to strong correlations between academic self-handicapping strategies with a majority of the LASSI-HS subscales. As both groups had correlations of similar magnitudes on Motivation, Time Management, and Concentration, the results implied that regardless of group membership, academic use of self-handicapping strategies negatively related to use of study strategies.

Reviewing the relations within the predictors of self-handicapping tendencies, students with self-handicapping tendencies has significant negative correlations with Academic Efficacy and Avoiding Novelty, Academic Efficacy and Low Achievement,

and Academic Self-Handicapping Strategies and Attitude subscale of the LASSI-HS. These significant correlations disappeared in the relations with students without self-handicapping tendencies. The disappearance of the relations may have suggested that the Academic Efficacy may be significantly related to the use of self-handicapping strategies. This supported research by a number of researchers as discussed in the literature review (Gettinger & Seibert, 2000; Weinstein, 2001).

The relations between the two groups (with and without self-handicapping tendencies) displayed different relations on both their use of goal orientations and study strategies. This may have indicated that each group illustrated educational differences with their behaviors and use of learning strategies. The relations between these variables should be considered when developing future interventions and curriculum changes.

Differences between Goal Orientations Employed by Each Group (with and without Self-Handicapping Tendencies)

It was predicted that students who did not have a tendency to self-handicap would endorse more mastery goal orientations (Question 3 and Hypothesis 1). Students without self-handicapping tendencies reported greater use of mastery goal orientation strategies than students with self-handicapping tendencies on their pretest scores. The results from the current study are in line with previous research demonstrating that students without self-handicapping tendencies may be more focused on the process (learning) of the task they are working on than on performance (Hirt et al., 2003; Pintrich, 2000).

In contrast to the literature, students with self-handicapping tendencies reported more mastery goals than performance goals (Hirt et al, 2003; Midgley & Urdan, 2001; Pintrich, 2000). Also, students without self-handicapping tendencies used more performance-approach goals and the same performance-avoid goals as students with self-handicapping tendencies. Pintrich (2000) suggested that one reason for the lack of difference in endorsement of performance goal orientations is that students do not possess purely one type of goal orientation. In fact, people may possess combinations of goal orientations under different academic situations and tasks being performed (Pintrich, 2000). Therefore, posing a question of whether students with self-handicapping tendencies endorse more performance-avoid versus performance-approach may need to be revised. The revised question would ask; what profile or level and combination of mastery and performance goal orientations may make students at risk for use of self-handicapping strategies? Or more interestingly, in what context are they likely to employ one goal-type versus another? Also, perhaps it is a variety of factors (i.e. context, task, time, use of study strategies, gender, and age) combined that forces students to endorse different perceptions, beliefs, and strategies.

In addition, the present study's results indicated that most students (with and without self-handicapping tendencies) endorsed performance goals, not just students with self-handicapping tendencies. Once again, illustrating that there may be additional factors that need to be investigated in determining who employs self-handicapping tendencies and when do these behaviors become maladaptive in nature.

Differences between Study Strategies Employed by Each Group (with and without Self-Handicapping Tendencies)

Question 4 explored the differences between the two group's use of learning and study strategies. It was predicted that there would be differences in the use of study strategies between the two groups (with and without self-handicapping tendencies). In addition, students with self-handicapping tendencies would have lower means scores on Attitude, Motivation, Concentration, Time Management, Anxiety, and Test Strategies subscales of the LASSI-HS (Hypothesis 2).

There was a relation between the use of self-handicapping strategies and effective learning and study strategies reported by students. When reviewing the type of learning and study strategies reported by students, it was found that there were significant differences in the use of effective study strategies between the two groups. The results indicated that their was a difference between the two groups in their (a) attitude, (b) motivation, (c) time management, (d) concentration, and (e) test-taking abilities. The results supported Schunk and Zimmerman's (2001) work showing that students with self-handicapping tendencies used less effective study strategies.

Midgley and Urdan (2001) suggested that there may be a negative cycle based on the use of self-handicapping strategies which leads to negative effects on motivation and concentration, thus, creating an even greater reliance on self-handicapping strategies (Midgley & Urdan, 2001). As students become more dependent on the use of self-handicapping strategies, researchers suggest that they are at risk for developing (a) poorer adjustment to adversity over time, (b) poorer study strategies, and (c) increased feelings of depression, anxiety, and helplessness (Elliot & Harackiewicz, 1996; Midgley

et al., 2001; Woolfolk, 2001; Zimmerman & Schunk, 2001). However, no significant difference was found between students with and without self-handicapping tendencies on the Anxiety subscale of the LASSI-HS. This suggested that both groups of students suffer from some levels of anxiety. As the two groups demonstrated no significant difference in their use of performance goals, then both groups may be equally prone to anxiety. The greatest difference may have been in how each group deals with stress and anxiety and the behaviors and attitudes that each group employs along with the use of their other academic strategies.

Since there were significant differences in attitude, motivation, and concentration between the two groups, it may be these three factors which determined whether anxiety had positive or negative affects. For example, students with higher motivation and better ability to concentrate would have a better overall attitude when dealing with stressful situations. The three factors combined should help students be more adaptive and demonstrate more positive self-talk when faced with negative situations. Therefore, when students with self-handicapping tendencies are faced with stress they may be more inclined to use negative self-talk which would reduce their motivation causing them to think more about their self-worth and less about the task they are performing. It may be motivation, concentration, and attitude which have stronger connections as to whether students have perceptions, beliefs, and use strategies that are related to self-handicapping tendencies. It may be those relationships that require further investigation.

Differences in between and within Pretest and Posttest Scores for Students with and without Self-Handicapping Tendencies on Goal Orientations and Study Strategies

It has been investigated in numerous studies to determine if students with self-handicapping tendencies endorse more performance goals and less effective study strategies (Elliot & Harackiewicz, 1996; Midgley et al., 2000; Midgley & Urdan, 2001; Schunk & Zimmerman, 2001). Thus, the purpose of the intervention was to target students' learning and study strategies by building on their strengths and targeting weaknesses. In so doing, it was anticipated that all students participating in the study strategy seminars (intervention) would improve their use of study strategies and alter their goal orientations from performance to mastery (Question 5 and Hypothesis 3).

Smith, Sinclair, and Chapman (2002) explained that students' change in use of performance goal orientations may have been in response to having to perform for assessments, such as self-reports which were used in this study. Therefore, changes in endorsement in both performance goals may have been due to the competitive nature of students. In addition, students with performance-goal orientations were more vulnerable to external pressures as they were more concerned about how they were going to perform causing them to be focused on improvement and change on their performance (Smith et al., 2002). Therefore, the changes in performance goals may not have been related to the intervention.

In discussing the LASSI-HS subscales, both groups showed significant within subject effects which suggested that the use of study strategies differed for all students after the intervention (difference between pretest and posttest scores). However, this did not indicate that the changes were definitely due to the intervention. The changes may

have been due to time, maturation, or some other factor that all students in the study were subjected to. It did seem that the intervention did have positive effects as the participants were from three different schools in two different cities which reduced the likelihood that all students were subjected to an identical factor (other than maturation and time) that may have accounted for the difference in pretest and posttest scores. Further information and analyses on how attendance affected these scores may be required. Additional analyses is also are required and further modifications in the design prior to being able to state that the intervention had positive effects.

Students who did not endorse self-handicapping tendencies improved on all scales but most significantly on attitude, motivation, time management, concentration, and test strategies. The results suggested that students who did not endorse self-handicapping tendencies may have been able to use more effective strategies as they were already motivated, were able to concentrate, and had a stronger ability to attend to the tasks they are performing. Their improvement may have been due to their ability to concentrate, be highly motivated, and use of mastery goals. However, even with the motivation and ability to concentrate if they did not have the skills and strategies to perform the required task they may not reach their potential (Weinstein & Palmer, 1990).

After having the completion of the learning and study seminars, students with self-handicapping tendencies improved their motivation and concentration, reduced their levels of anxiety, and improved their use of time management strategies. Research by Schunk and Zimmerman (2001) may support this finding in that when students are taught about their strengths and weaknesses in conjunction with being taught effective

study skills, they are more motivated to learn. Perhaps this reduced students' anxiety levels allowing them to identify the main ideas, and use additional study aids such that they were better able to demonstrate their knowledge in testing situations.

In addition, reported levels of anxiety were reduced over time for both groups of students. Therefore, stress may be commonly experienced by all students. Stress management should be a key component of most intervention programs, since it appears that students who regulate stress accordingly are more likely to experience success.

Given more time, students who have self-handicapping tendencies may learn to use more effective study strategies and increase their use of mastery goal schema, to similar levels as students who do not have self-handicapping tendencies. In addition, the presence of the intervention of study strategies with ongoing assessments may be able to help both groups reduce their stressors as it appeared to have different effects on each of the groups. However, those effects may have been the result of other factors. Therefore, an intervention and learning profile development needs to be investigated more thoroughly.

Limitations of the Study

The students who participated in this study were from self-directed learning high schools in Alberta (an alternative education program). The sample population may be more highly motivated and more independent (students who attend these schools choose to go there) than students in traditional learning environments. Therefore, the study may not be representative of all high school students. In addition, the small sample size due to specific sampling may also cause generalizability difficulties.

Another limitation of the current study was that the attrition rate (from pretest to posttest) was relatively high, which may have played a significant factor in the final results. Final testing took place in the schools in late May when students were beginning to focus on final examinations and diploma examinations. Thus, students made their academic examinations or other end of the year activities a priority over further assessments in the study causing the high rate of attrition.

Finally, the manner in which the groups were divided may have played a large factor in the results of the study. This criticism was based on the correlation tables that did not illustrate strong correlations between the predictors (perceptions, beliefs, and strategies) used by students. It also did not confer with other studies in how their groups clustered (Midgley, et al. 2000, Smith et al. 2002). However, the study and analyses continued to determine if these groups may have illustrated similar relations with goal orientations and study strategies.

Future Considerations

Although the findings suggest that the intervention may have helped all students improve their use of effective study strategies, additional longitudinal research with a control group is required to determine if there are fading effects over time, and if changes between pretests and posttests were due to maturation or to effects other than the intervention. Future studies should consider including a larger number of students over a two year or longer period of time in both self-directed and traditional learning schools while factoring the effects of attendance. Questions that emerge from the present study are (a) Do all students in high school suffer for anxiety and have performance goals? (b) Do students in self-directed learning schools have higher levels

of motivation than traditional schools? (c) Do sections of the intervention help students with self-handicapping tendencies more than other sections? (d) Do the results depend on the task or situation the student is involved in? And (e) Do sections of the intervention require modification to achieve longer lasting effects with students?

Additional research in the area of psychosocial factors and relations to academic achievement in older adolescents is missing. Also, literature is lacking in this area and may be beneficial to educators if there are differences in use of self-handicapping strategies. Also, further research is required to determine if students with self-handicapping tendencies are affected by context, subject matter, and other variables (gender, cognitive ability).

Conclusion

The current study found commonalities among students as well as differences between students with and without self-handicapping tendencies. All students (students with and without self-handicapping tendencies) altered their use of study strategies after the intervention; however, it may have not been to the intervention.

In conclusion, learning and study strategies seminars and using individual learning profiles needs to be further investigated with students who endorse perceptions, beliefs, and strategies associated with self-handicapping tendencies. Should it be proven in future analyses that the seminars helped identify students who had maladaptive academic-related perceptions, beliefs, and strategies (i.e. use of self-handicapping strategies) become consciously aware of their strengths and weaknesses such that they became more involved in the learning process, then it would help all students become

responsible learners. Fostering adaptive learners who are able to transfer skills across contexts is a key educational objective.

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Appendix A

Letter to Parent(s) or Guardian(s)

September 2003

Dear Parent(s) or Guardian(s),

I am a graduate student in the Department of Educational Psychology at the University of Alberta under the supervision of Dr. Christina Rinaldi. I have worked with children, adolescents, and adults in a variety of educational settings. I am interested in how adolescents solve their learning tasks both in school and at home and most importantly helping students learn to have a better understanding of the learning process. Specifically I would like to help students learn how to learn and improve their study strategies. I am looking for participation from your son/daughter.

All volunteers will initially be tested for their beliefs about learning, intelligence, and study strategies used. However, not all students will receive all of the surveys and intervention that follow. This will be dependent upon their match for appropriateness for being involved in the project. For the next phase of the project, your son/daughter will have an opportunity to have their study strategies reviewed. After the initial completion of the surveys each student will be worked with on a one-to-one basis with their teacher, teacher advisor or myself to review and develop the study strategies that they may be using that are ineffective. By doing so, each student will learn to see their personal potential and strengths in regards to academics. Students will come to learn the material and how to study, write exams, read for comprehension rather than memorize the material. Between October 2003 and May 2004 each student will be taught all of the study strategies which will help prepare them for finals and further educational opportunities. Surveys will be re-administered in May so students can see their change in thoughts and use of effective study strategies.

You have my commitment that the confidentiality of all information gathered from your son/daughter remains assured. All responses obtained from your son/daughter will remain confidential and will be identified by a code number, not by name, on all material associated with the study. Students' identities will be protected at all times. Since the participation of your son/daughter is voluntary, they may withdraw from the study at any time. They are not required to give a reason for dropping out, just tell the teacher, teacher advisor, or researcher. There will be no penalty to your son/daughter should they wish to withdraw from the study. Data from this study will be kept for at least five years.

Upon completion of the study, you will receive a summary of the general findings. If you have any questions and require particular feedback, I am available for one-on-one feedback sessions.

University of Alberta
PARENT CONSENT FORM

I, _____, hereby
(Please print name of parent/legal guardian or independent student)

☐ consent

☐ do not consent

for _____ to
(Please print name of student)

- Complete surveys that will illustrate their thoughts about academic achievement and beliefs about intelligence.
- Complete a survey on their thoughts and use of learning and study strategies.
- To be taught effective study strategies such as time management, memory strategies, note-taking strategies, reading strategies, exam preparation and exam writing strategies, how to cope with anxiety and how to self-regulate.
- Complete demographic information on age, gender, parental level of education.
- Be interviewed if clarification of answers or questions is required.
- Access to grades from last year and grades from the present year in mathematics, science, English and social.

by Christine Welton, your son's/daughter's teacher or teacher advisor

I understand that:

- My son/daughter may withdraw from the research study at any time without penalty.
- My son/daughter will not be identifiable in any documentation resulting from this research.
- All information obtained will be treated with the utmost confidentiality and used for the sole purpose of this research.
- Any information that may identify my son/daughter will be destroyed upon completion of this research which is to be completed in approximately 2 years.

Letter to Student(s)

September 2003

Dear Student(s),

I am a graduate student in the Department of Educational Psychology at the University of Alberta under the supervision of Dr. Christina Rinaldi. I have worked with children, adolescents, and adults in a variety of educational settings. I am interested in how adolescents solve their learning tasks both in school and at home and most importantly helping students learn to have a better understanding of the learning process. Specifically I would like to help students learn how to learn and improve their study strategies. I am looking for participation from you.

All student volunteers will initially be tested for their beliefs about learning, intelligence, and study strategies used. However, not all of you will receive all of the surveys and intervention that follow. This will be dependent upon your match for appropriateness for being involved in the project. For the next phase of the project, you will have an opportunity to have your personal study strategies reviewed. After the initial completion of the surveys each of you will be worked with on a one-to-one basis with your teacher, teacher advisor or myself to review and develop the study strategies that you may be using that are ineffective. By doing so, each of you will learn to see your personal potential and strengths in regards to academics. You will come to learn the material and how to study, write exams, read for comprehension rather than memorize the material. Between October 2003 and May 2004 each of you will be taught all of the study strategies which will help prepare you for finals and further educational opportunities. Surveys will be re-administered in May so you can see your change in thoughts and use of effective study strategies.

You have my commitment that the confidentiality of all information gathered from you remains assured. All responses obtained from you will remain confidential and will be identified by a code number, not by name, on all material associated with the study. Your identity will be protected at all times. Since your participation is voluntary, you may withdraw from the study at any time. You are not required to give a reason for dropping out, just tell the teacher, teacher advisor, or researcher. There will be no penalty given to you should you wish to withdraw from the study. Data from this study will be kept for at least five years.

Upon completion of the study, you will receive a summary of the general findings. If you have any questions and require particular feedback, I am available for one-on-one feedback sessions.

University of Alberta
STUDENT CONSENT FORM

I, _____, hereby
(Please print name of student)

☐ consent

☐ do not consent

- Complete surveys that will illustrate your thoughts about academic achievement and beliefs about intelligence.
- Complete a survey on your thoughts and use of learning and study strategies.
- To be taught effective study strategies such as time management, memory strategies, note-taking strategies, reading strategies, exam preparation and exam writing strategies, how to cope with anxiety and how to self-regulate.
- Complete demographic information on age, gender, parental level of education.
- Be interviewed if clarification of answers or questions is required.
- Access to my grades from last year and grades from the present year in mathematics, science, English and social.

by Christine Welton, your teacher or teacher advisor

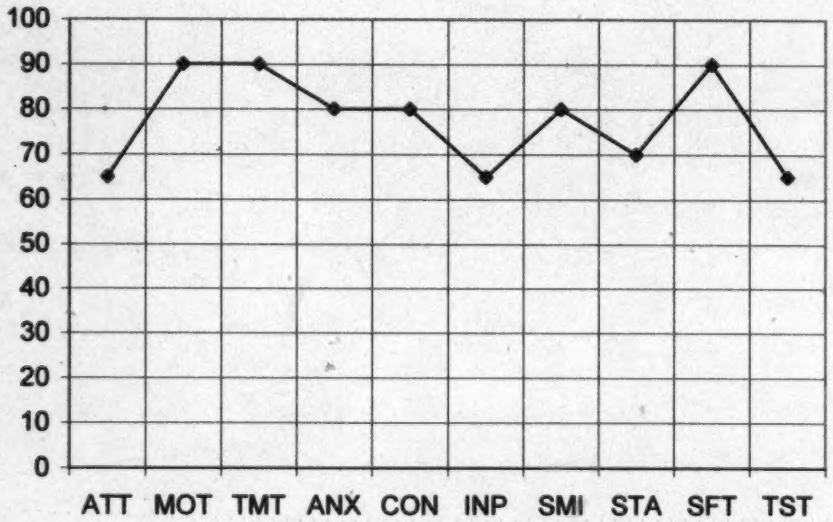
I understand that:

- I may withdraw from the research study at any time without penalty.
- I will not be identifiable in any documentation resulting from this research.
- All information obtained will be treated with the utmost confidentiality and used for the sole purpose of this research.
- Any information that may identify me will be destroyed upon completion of this research which is to be completed in approximately 2 years.

Appendix B

Sample of Student Learning Profile

Case Study 1



You are a highly motivated individual who uses great time management strategies. You also already use some very good self-testing and self-regulation strategies. By using more effective memory strategies and note-taking strategies to ensure that you are processing the information well, you will find that your test taking will better reflect the effort that you put into your studies. By using maps, charts, summaries and outlines that are in your own words and that are done in a manner that is meaningful to you, you will find that your ability to recall the material during exam and test situations will improve.

Also, by breaking the larger tasks and goals into smaller more manageable ones and work in 20 minute blocks of time this too will improve your recall and attitude about learning. These combined strategies will help to better illustrate your knowledge in test and exam situations. Remember to continue to test yourself and monitor if these strategies are working for you.

Appendix C

Sample of Demographics Page

Beliefs in Intelligence and Study Strategies Research
University of Alberta

Student Identification No.:_____

Date:_____

Please circle the appropriate response for each of the following questions:

1. High School: Bishop Carroll Bishop O'Byrne St. Joe's

2. Grade: Eleven Twelve

3. Gender: Male Female

4. Mother's Level of Education

1	2	3	4	5
Did not finish high school	Graduated from high school	Some college, university, technical training	Graduated college, university, technical training	Went beyond college, university (grad school, doctor)

5. Father's Level of Education

1	2	3	4	5
Did not finish high school	Graduated from high school	Some college, university, technical training	Graduated college, university, technical training	Went beyond college, university (grad school, doctor)

Appendix D

Sample Questions on the *Patterns of Adaptive Learning Survey (PALS)*

Academic-Related Perceptions, Beliefs, and Strategies

(a) Academic efficacy ($M = 4.20$, $SD = 0.71$)

1. I'm certain I can master the skills taught in class this year.

11. I'm certain I can figure out how to do the most difficult class work.

52. I can do almost all the work in class if I don't give up.

56. Even if the work is hard, I can learn it.

58. I can do even the hardest work in this class if I try.

(b) Academic self-handicapping strategies ($M = 2.09$, $SD = 1.01$)

12. Some students fool around the night before a test. Then if they don't do well, they can say that is the reason. How true is this of you?

16. Some students purposely get involved in lots of activities. Then if they don't do well on their class work, they can say it is because they were involved with other things. How true is this of you?

18. Some students look for reasons to keep them from studying (not feeling well, having to help their parents, taking care of a brother or sister, etc.). Then if they don't do well on their class work, they can say this is the reason. How true is this of you?

42. Some students let their friends keep them from paying attention in class or from doing their homework. Then if they don't do well, they can say their friends kept them from working. How true is this of you?

44. Some students purposely don't try hard in class. Then if they don't do

well, they can say it is because they didn't try. How true is this of you?

47. Some students put off doing their class work until the last minute. Then if they don't do well on their work, they can say that is the reason. How true is this of you?

(c) Avoiding novelty ($M = 2.92$, $SD = 1.00$)

7. I would prefer to do class work that is familiar to me, rather than work I would have to learn how to do.

20. I don't like to learn a lot of new concepts in class.

23. I prefer to do work as I have always done it, rather than trying something new.

35. I like academic concepts that are familiar to me, rather than those I haven't thought about before.

40. I would choose class work I knew I could do, rather than work I haven't done before.

(d) Self-presentation of low achievement ($M = 1.79$, $SD = 0.75$)

2. I would avoid participating in class if it meant that other students would think I know a lot.

5. If other students found out I did well on a test, I would tell them it was just luck even if that wasn't the case.

21. I wouldn't volunteer to answer a question in class if I thought other students would think I was smart.

24. If I did well on a school assignment, I wouldn't want other students to see my grade.

27. It's very important to me that I don't look smarter than others in class.

37. If I were good at my class work, I would try to do my work in a way that didn't show it.

46. One of my goals in class is to avoid looking smarter than other kids.

(e) Skepticism about the relevance of school for future success ($M = 1.95$, $SD = 0.92$)

4. Even if I do well in school, it will not help me have the kind of life I want when I grow up.

3. My chances of succeeding later in life don't depend on doing well in school.

28. Doing well in school doesn't improve my chances of having a good life when I grow up.

32. Getting good grades in school won't guarantee that I will get a good job when I grow up.

36. Even if I am successful in school, it won't help me fulfill my dreams.

43. Doing well in school won't help me have a satisfying career when I grow up.

Belief in Intelligence or Ability

PALS will also be used to test for students' beliefs in intelligence.

(a) Mastery goal orientation ($M = 4.15$, $SD = 0.88$)

9. It's important to me that I learn a lot of new concepts this year.

25. One of my goals in class is to learn as much as I can.

29. One of my goals is to master a lot of new skills this year.

38. It's important to me that I thoroughly understand my class work.

49. It's important to me that I improve my skills this year.

(b) Performance-approach goal orientation ($M = 2.46$, $SD = 1.15$)

8. It's important to me that other students in my class think I am good at my class work.

26. One of my goals is to show others that I'm good at my class work.

41. One of my goals is to show others that class work is easy for me.

45. One of my goals is to look smart in comparison to the other students in my class.

48. It's important to me that I look smart compared to others in my class.

(c) Performance-avoid goal orientation ($M = 2.40$, $SD = 1.04$)

3. It's important to me that I don't look stupid in class.

33. One of my goals is to keep others from thinking I'm not smart in class.

51. It's important to me that my teacher doesn't think that I know less than others in class.

55. One of my goals in class is to avoid looking like I have trouble doing the work.